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TRANSPORTATION SCIENCES CENTER
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Calspan Corporation
[redacted] New York [redacted]

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 95-20

VEHICLE #1 - 1994 CHEVROLET CAMARO Z28 CONVERTIBLE (DUAL AIR BAG-EQUIPPED)
LOCATION - UTAH
CRASH DATE - [redacted] 1995

Contract No. DTNH22-94-D-07058

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

1. *Report No.* 95-20	2. *Government Accession No.*	3. *Recipient's Catalog No.*
4. *Title and Subtitle* Calspan On-site Air Bag Deployment Investigation Vehicle - 1994 Chevrolet Camaro Z28 Convertible Location - Utah		5. *Report Date:* [redacted] 1995 6. *Performing Organization Code*
7. *Author(s)* Accident Research Group		8. *Performing Organization Report No.*
9. *Performing Organization Name and Address* Transportation Sciences Center Accident Research Group Calspan Corporation SRL [redacted] York [redacted]		10. *Work Unit No.* 1115 (5380-5389) 11. *Contract or Grant No.* DTNH22-94-D-07058
12. *Sponsoring Agency Name and Address* U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590		13. *Type of Report and Period Covered* Technical Report Crash Date: [redacted] 1995 14. *Sponsoring Agency Code*

15. *Supplementary Notes*
On-site investigation of an air bag deployment crash that resulted in fatal injuries of an unbelted 5 year old male passenger.

16. *Abstract*

A single vehicle parking lot crash occurred [redacted]**, 1995, at 1810 hrs. in t[redacted] Utah. A 1994 Chevrolet Camaro Z28 Convertible equipped with a dual air bag system was traveling west in a restaurant parking lot when the driver steered in a southerly direction in an attempt to park her vehicle on the west side of the restaurant. As the driver proceeded with the left turn maneuver, the undercarriage of the vehicle contacted a curbed parking lot island resulting in the deployment of the air bag system. The vehicle was traveling at a calculated speed of 28.2 km\h (17.5 mph) at the time of the crash. The vehicle came to the final rest position with the front bumper over the parking lot island and the left front tire in close proximity to the 20.3 cm (8.0") high barrier curb face.

The 42 year old female driver who was 160.0 cm (64.0") tall and weighed 54.0 kgs (119 lbs.) was not wearing the available three point manual lap and torso restraint belt at the time of the crash. The driver sustained a large contusion (i.e., reddening) of the her left face and left neck from contact with the driver side air bag. She did not seek medical treatment.

The 5 year old male right front passenger who was 105.0 cm (41.3") tall and weighed 25.0 kg (55.1 lbs) was not wearing the available three point manual lap and torso restraint belt at the time of the crash. The boy contacted the passenger side air bag module flap and air bag during the deployment cycle. He sustained numerous injuries to his head, face, neck, and upper torso as the result of the contact with the air bag, the windshield, and windshield header. Injuries included: a fracture of the coronal suture line, compressive type injury of both sides of the skull; cortical hemorrhages of the brain (AIS-3), subdural hemorrhage (AIS-4); subarachnoid hemorrhage (AIS-3); compressed ventricles of the brain (AIS-3); disruption of the spinal cord(AIS-5); separation of the intervertebral discs from the bodies of C_2 and C_3 (AIS-2); laceration of interspinous ligaments between C_1 and C_2, dislocation of C_2; protrusion of the odontoid process of C_2 into the spinal canal; stretching laceration of the inferior vena cava (AIS-3); multiple abrasions and contusions of the face (in particular over the left side); multiple contusions of the subgaleal, a contusion of the left anterior shoulder and underlying muscle; and an abrasion of the left wrist.

The boy was transported via helicopter to a local hospital. He was placed on a life support system until the following day where the results of a neurological exam along with the cerebral profusion study diagnosed the patient as meeting the brain death criteria. He was pronounced expired at 1015 hrs and was left on the ventilator for a period of time for the benefit of the family. An autopsy was performed by the state medical examiner's office.

17. *Key Words* Supplemental Inflatable Restraint (SIR) System Passenger Side Air bag, Module Cover Undercarriage Impact Impact Speed 28.2 km\h (17.5 mph) AIS-5 (critical) Level Injury		18. *Distribution Statement* General Public	
19. *Security Classif. (of this report)* Unclassified	20. *Security Classif. (of this page)* Unclassified	21. *No. of Pages*	22. *Price*

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CALSPAN DUAL AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 95-20

VEHICLE - 1994 CHEVROLET CAMARO Z28 CONVERTIBLE

LOCATION - UTAH

SUMMARY

This crash involved a 1994 Chevrolet Camaro Z28 Convertible (Vehicle #1) equipped with a dual air bag system (driver and passenger side air bags) which was driven by a 42 year old, 160 cm (63") tall, 54 kg (119 lb.) female driver. The right front seat area was occupied by a 5 year old, 105.0 cm (41.3") tall, 25 kg (55 lb) male passenger. The crash occurred on [redacted]**, 1995 at 1805 hours in Utah.

Vehicle #1 was traveling in a parking lot of a restaurant when it struck a parking lot island curb with the frontal undercarriage. This impact initiated the air bag deployment sequence which deployed both air bags. The right front occupant who was unrestrained by the available three point manual lap and torso belt came in contact with the passenger side air bag module cover and air bag as it began to deploy. He was subsequently propelled upward and contacted the windshield and windshield header with his head. He moved downward and rearward coming to rest (as described by the driver) with his head next to the in-board side of the driver side seat back rest looking upward and his feet in front of the right front seat cushion.

The driver sustained minor injuries of the face and neck (AIS-1) while the right front passenger sustained severe head and neck injuries (AIS-5). Although the driver insisted she and her grandson were both wearing the available three point manual lap and torso belt, vehicle evidence and injury data indicated neither person was using their manual belt at the time of the crash.

After the crash, the driver removed the right front occupant from the vehicle through the right front door and carried him into the restaurant where she placed him on the floor. A passer-by stopped and administered first aid prior to the arrival of rescue teams.

The local police department arrived on-scene at about the same time as the first rescue team which was approximately three minutes after the crash. They restricted the area to bystanders and posted a police officer at the vehicle to ensure that no one tampered with the vehicle. The vehicle was removed from the scene via tow truck and stored in a secured storage facility pending this investigation.

Approximately ten minutes after the crash, a second rescue team arrived via helicopter from a nearby hospital. The helicopter landed in the restaurant parking lot. The right front occupant was air lifted to the hospital where he was placed on a ventilator. A brain death test was

performed the next morning which confirmed the clinical prognosis of no brain activity. He was declared dead at 10:15 A.M. and was left on the ventilator while the family dealt with the situation.

The driver was coming from a day care center where she picked up the right front passenger (her grandson) and was en route to the restaurant where she planned to pick-up the evening meal (the restaurant specializes in quick food cuisines including sandwiches, soups, etc.). In the 0.6 mile measured distance from the day care center to the restaurant, Vehicle #1 traveled north on a two lane undivided roadway and made a right turn onto a four lane divided highway eastbound. After traveling one block, the driver turned right onto a local street and immediately made another right turn into the driveway of the restaurant.

The driver indicated she slowed almost to a stop as she entered the driveway due to the spillway across the driveway apron. She accelerated and traveled past the front of the restaurant in a westbound direction and planned to park in the parking lot located south of the driveway (refer to the scene schematic on page 5). The intended parking space was located adjacent to the outdoor eating area and bounded by a curbed parking lot island.

Just prior to the south parking lot area, the driveway widened along the right side (i.e., north side) to accommodate parking. From police on-scene photographs, there were no vehicles other than rescue vehicles parked in this area prior to the crash (refer to photographs #19, #20, #23, #24, #25 on pages A-10, A-12, A-13). Given Vehicle #1's impact angle with the parking lot island curb, the vehicle traveled over part of this parking area prior to the crash.

As the driver proceeded into the north parking area, she initiated a left turn. From the the undercarriage contact pattern on the curb face and the fact that the intended parking space was approximately 7 m (23') from the point of impact (POI), it was likely she had applied the brakes prior to the crash.

A computed impact speed indicated the vehicle was traveling 28.2 km (17.5 mph) at the point of impact (POI). Travel speed test runs performed during the on-site investigation indicated that a 32.2 km (20.0 mph) speed was easily attainable without exaggerated engine acceleration (i.e., runs were performed without regard to maximum travel speed potential and represented a "comfortable" speed for the test vehicle). The test vehicle was a 1995 Pontiac Grand Prix which had three adult passengers. This vehicle was outclassed in terms of performance by Vehicle #1's 5.7 liter, V-8 engine (vs. the Pontiac's 3.1 liter, V-6 engine), six speed manual transmission (vs. a five speed automatic transmission), and high performance tires/suspension.

The driveway was delineated from the south parking lot by two barrier curbed parking lot islands which were 7.2 m (23.6') apart. Their function was to channel vehicles into the south parking lot while establishing the boundary of the parking lot.

While the driver was turning and braking, the lower front air deflector panel of the vehicle scraped the curb of the parking lot island and was flexed rearward. As the vehicle continued forward, the front anti-sway bar contacted the curb and subsequently overrode it as the vehicle

continued along its trajectory. The cross frame member and rack and pinion steering housing then contacted the curb. This contact was sufficient to initiate the air bag deployment sequence as discussed later in this report. The vehicle came to the final rest position (FRP) against the curb (refer to photographs #21, #22, #26, #27 on pages A-11, A-13, A-14).

The driver's six way electric seat was adjusted just rearward of the full forward position which placed her upper torso and head in close proximity to the air bag module cover. She was not wearing the available three point manual lap and torso restraint belt. Upon deployment, the air bag exited the module in the normal fashion and struck the right side of the driver's face and neck resulting in a deep redden area (i.e., contusion) that was clearly visible ten days after the crash. The driver did not seek medical treatment.

The five year old 105.0 cm (41.3"), 25 kg (55 lb.) male, who was seated in the right front seat sustained fatal injuries as the result of contact with the passenger side air bag module cover, air bag, and the windshield/windshield header. His seat was adjusted to the full rear position. Contact evidence (i.e., body tissue transfer) on the air bag, windshield, and windshield header along with associated injuries of his head, face and neck indicated the occupant was not wearing the available manual three point lap and torso restraint belt at the time of the crash.

The right front occupant sustained multiple injuries as presented in detail on page -21- of this report. Some of the injuries included: subgaleal contusions; a compressive type injury of both sides of the skull; fracture of the coronal suture line; swelling of the brain; cortical hemorrhages of the brain; subdural hemorrhage; subarachnoid hemorrhage; compressed ventricles of the brain; disruption of the spinal cord; separation of the intervertebral discs from the bodies of C_2 and C_3; laceration of interspinous ligaments between C_1 and C_2, dislocation of C_2; protrusion of the odontoid process of C_2 into the spinal canal; stretching laceration of the inferior vena cava; multiple abrasions and contusions of the face (in particular over the left side); a contusion of the left anterior shoulder and underlying muscle; and an abrasion of the left wrist (refer to photographs #100-#108 on pages A-51 through A-59).

The medical examiner's report indicated the boy sustained an impact that was focused on the left side of the face and neck which resulted in a side-to-side compression of the skull and acceleration/deceleration injuries to the brain. The report further noted that the extension/flexion injuries to the upper neck suggested the boy experienced vigorous backward/forward motion in addition to the side-to-side motion. The report cited that no injuries typical of seat restraint belt usage (i.e., lap or torso belt) were identified during the postmortem examination .

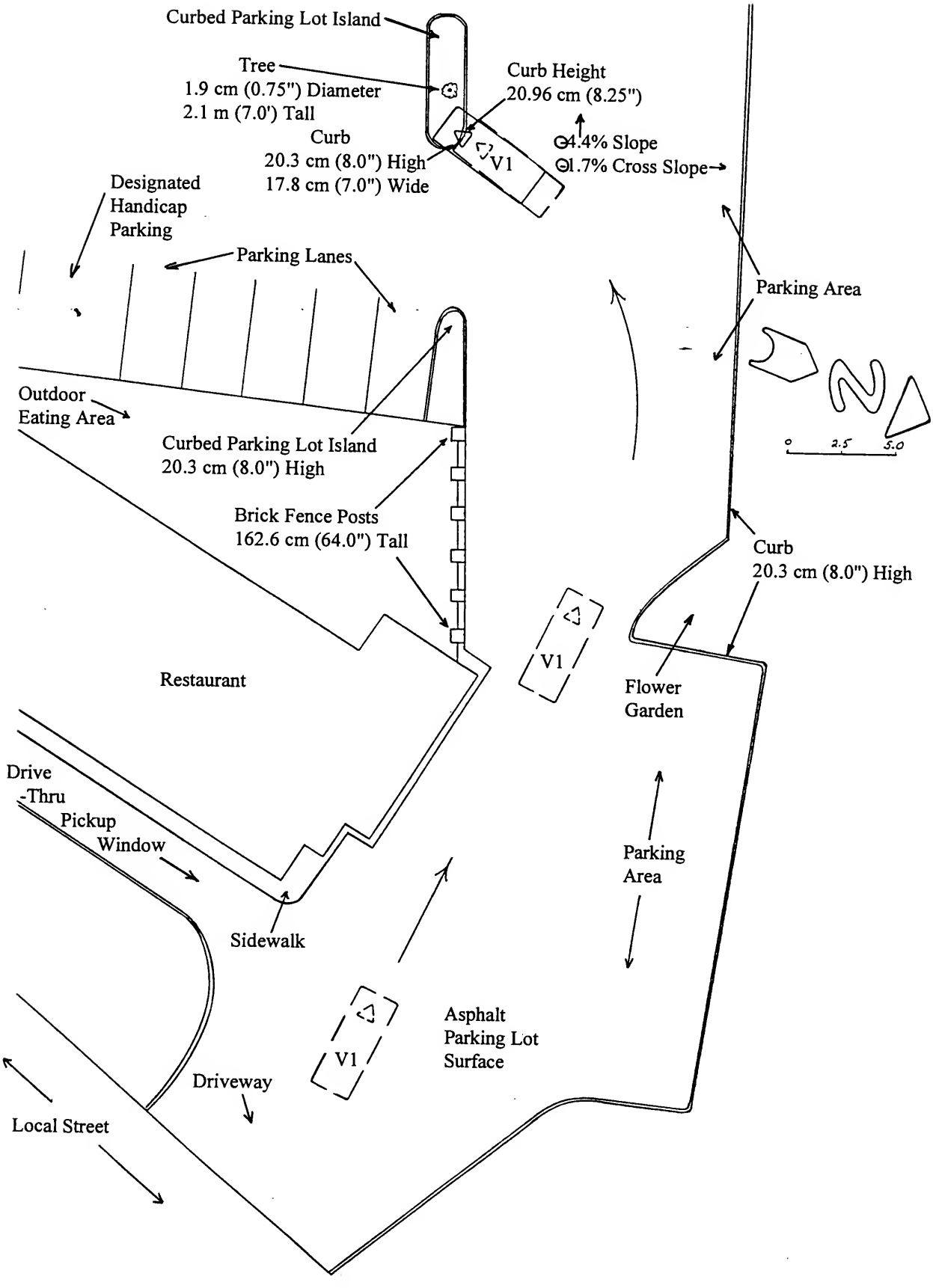
The spinal cord was hemorrhagic, soft and crushed at the upper end in the vicinity of C_1 and C_2. The medical examiner's report indicated this injury was the result of blunt force applied to the spinal column. During the autopsy, a segment of the brain and spinal cord was removed for closer examination. An area of the cord just below the medulla showed a compressed area which was described by the medical examiner as resembling the consistency of "tooth paste". By way of comparison, the medical examiner explained that a normal spinal cord segment should have the appearance and consistency of a "cheese stick".

The weather at the time of the crash was clear and sunny with the sun low in the western sky. The driver was wearing nonprescription sunglasses prior to the crash, but indicated the sun did not present a visual restriction or limitation. She had been listening to a national news broadcast on the radio while traveling from her place of employment to the child care facility, but claimed the radio was not on just prior to the crash.

The driveway/parking lot was a dry asphalt surface with an aggressive aggregate composition. The estimated coefficient of friction was 0.90. The driveway slope in the westerly direction was -4.4 percent and a -1.7 percent cross slope in a northerly direction. The curb height at the POI was 20.3 cm (8.0'") near the left side of the vehicle/curb contact and 20.96 cm (8.25") near the right side vehicle/curb contact.

The vehicle was inspected eight days after the incident. The vehicle was towed from the scene of the crash to a police vehicle storage lot, where it was secured until the time of our inspection.

Crash Scene Schematic
Calspan Case No. 95-20



CRASH DATA	
Location:	Parking lot of a "quick food" restaurant
City/Township:	City in Utah
Area/Type:	Commercial
Investigating Police Agency:	City Police Department
Accident Type:	Single vehicle strikes an object (barrier curb of parking lot island)
Air Bag Vehicle Injury Severity Driver Right Front Passenger	 Minor (AIS-1) Critical (AIS-5)
AMBIENCE	
Viewing Conditions:	Daylight
Weather:	Clear
Road Surface:	Dry
PARKING LOT	
Type:	Driveway of a restaurant parking lot
Number Of Lanes:	Two way travel with no lane markings
Width:	Varying from 6.8 m (22.3') at POI [with an adjacent 5.2 m (17.1') parking area] to 6.2 m (20.4') located 23.4 m (76.8') east of the POI
Surface:	Asphalt
Median:	None
Edge:	North edge - 20.3 cm (8.0") high barrier curb South edge - 20.3 cm (8.0") high side walk adjacent to restaurant
Vertical Alignment:	⊖ 4.4 percent westbound ⊖ 1.7 percent northbound

Horizontal Alignment:	No travel lane markings, designed with two straight segments that were joined at an oblique angle, these segments followed the perimeter of the restaurant
Estimated Coefficient Of Friction:	0.9
Traffic Density:	No other vehicles
TRAFFIC CONTROLS	
Signals:	None
Signs:	None
Markings:	Curbed parking lot island along the left side of Vehicle #1's travel path designed to separate travel areas from parking spaces
Speed Limit:	Not posted
VEHICLE DESCRIPTION	
Description:	1994 Chevrolet Camaro Z28 Convertible
V.I.N.:	2G1FP32PXR2 (production number omitted)
Color:	Dark green/navy
Odometer:	27,012 km (16,785 miles)
Engine:	8 cylinder, 5.7 liter, 275 horsepower @ 5,000 RPM, 325 ft-lbs of torque @ 2,000 RPM
Transmission:	6 speed manual
Steering:	Power steering rack and pinion
Brakes:	Four wheel power assisted anti-lock disc brakes
Padding:	Door panels, door arm rests, seats, sunvisor, soft edge steering wheel rim, driver side air bag module cover, passenger side air bag module cover
Active Restraints:	3-point lap and torso restraint belts in the four outboard seating positions

Passive Restraints:	Driver side and right front passenger side air bag Supplemental Inflatable Restraint (SIR) system that deployed as a result of the impact with the parking lot island curb
Defects:	None
Tow Status:	Towed due to damage

VEHICLE DAMAGE

Exterior Damage

The exterior damage to the vehicle involved the lower front air deflector panel, the lower radiator tie bar, the front anti-sway bar, the leading edge of the engine cross member (i.e., the protruding sloped skid plate), the rack and pinion housing, rearward displacement of the engine cradle and the left wheelbase. There was slight deformation of the left front fender and headlight panel.

Contact on the lower air deflector panel extended laterally 120.0 cm (47.25") across the entire surface and extended vertically from the lower radiator tie bar 11.1 cm (4.4") to the bottom edge of the air deflector panel. The contact pattern consisted of vertically oriented gouge marks in the plastic air deflector panel which was consistent with the concrete curb contact (refer to photograph #47-#48 on page A-24).

As the vehicle continued forward, the bottom of the front anti-sway bar contracted the curb which was located 43.2 cm (17.0") rearward of the lower radiator tie bar. The bottom portion of the anti-sway bar was gouged with traces of whitish powder consistent with the concrete curb impact (refer to photograph #50 on page A-25).

The leading edge of the engine cross frame member (i.e., skid plate) was located 10.2 cm (4.0") rearward of the anti-sway bar. Contact began 4.32 cm (1.75") left of the vehicle centerline and extended laterally to the left 18.42 cm (7.25"). The left corner of the skid plate was displaced rearward 5.1 cm (2.0") and upward 4.45 cm (1.75").

The rack and pinion housing immediately to the left of the skid plate and extending to the left 13.0 cm (5.1") also contacted the concrete curb. This contact fractured the housing and displaced the left side of the steering rack 3.8 cm (1.5") upward and rearward. Power steering fluid was released through the fracture site and was visible on the asphalt at the scene (refer to photographs #13-#14 on page A-7, #53 on page A-27).

The engine cradle was displaced rearward 12.7 mm (0.5") on the left side and 4.8 mm (3/16") laterally to the right on the right side. The left front wheel was displaced rearward 1.91 cm (0.75") while the right front wheel moved forward 1.3 cm (0.5").

The vehicle's forward momentum was halted at curb as the engine cross frame member remained in contact with the curb face. The contact pattern to the undercarriage of the vehicle indicated that the vehicle's engine cross frame member did not climb over the curb.

CDC: 12-FDLW-2

Repair Cost: The police accident report listed the damage at $4,000 (which appeared to be a conservative estimate).

Interior:

Interior damage to the Chevrolet Camaro Z28 was associated with the air bag deployment and occupant contacts. The driver side air bag module cover opened along the designated tear seam lines in the typical "I" pattern. A 6.4 cm x 6.4 cm (2.5" x 2.5') whitish powder residue smudge mark was observed on the right air bag module flap which probably was deposited post crash by either the driver or by vehicle removal efforts. The driver did not suffer any injuries related to the air bag module flaps.

There were two scuff marks on the driver side knee bolster, one on each side of the steering column (refer to photographs #73, #74 on page A-37). The left scuff mark measured 7.6 cm (3.0") in diameter and was located 54.6 cm (21.5") left of the vehicle centerline. The right mark measured 8.9 cm x 10.2 cm (3.5" x 4.0") and was located 30.5 cm (12.0") left of the centerline. These marks were associated to contact by the driver's knees.

The steering wheel rim was not damaged and the steering column shear capsules were not displaced. The front wheels did not respond to steering wheel turning input applied during the post crash vehicle damage evaluation. Damage to the rack and pinion allowed the turning of the steering wheel, but the steering linkage reacted independently. The position of the steering wheel rim at the final rest position (FRP) was rotated approximately 180^0 as seen in on-scene police photographs.

The windshield/windshield header in front of the right front seat exhibited bodily tissue transfers which were associated with contact by the right front occupant's head and face (refer to photographs #83-#87 on pages A-42, A-43). The transfer on the windshield measured 6.4 cm x 7.6 cm (2.5" x 3.0") and was located 41.9 cm (16.5") right of the vehicle centerline. The transfer on the windshield header which began at the header and continued rearward measured 5.1 cm (2.0") in diameter and was located 35.6 cm (14.0") right of the vehicle centerline.

A fabric transfer noted on the "hush" panel below the glove compartment was associated with a contact by the right front occupants right leg (refer to photograph #96 on page A-48). The transfer mark measured 7.0 cm x 7.9 cm (2.75" x 3.1") and was located 55.9 cm (22.0") right of the vehicle centerline. This transfer appeared to have a striated rotational pattern consistent with a corduroy material. The right front occupant was wearing long shorts at the time of the crash.

The passenger side air bag module flap separated along the predesigned tear points and contacted the windshield with the left side causing a spider web crack pattern (refer to photographs #83, #84, #87 on pages A-42, A-44). The right side of the cover also contacted the windshield resulting in a black transfer mark adjacent to the right upper A-pillar.

The leading edge of the passenger side air bag module flap along a lateral area measuring 19.1 cm (7.5") was deformed (refer to photograph #88, #89 on pages A-44, A-45) as the result of contact with the right front occupant's head/face. The right corner of the cover exhibited a crack which extended from the right edge inward 2.8 cm (1.1").

The passenger side air bag exhibited a heavy body tissue transfer and a bodily fluid deposit which was attributed to contact by the right front occupant's face (refer to photographs #92, #93 on pages A-46, A-47). The tissue transfer covered an area of 26.7 cm (10.5") in length and 2.5 cm (1.0") in width and was located between the upper and lower air bag tether double stitched attachment points. The bodily fluid deposit measured 3.8 cm (1.5") in length and was located 24.8 cm (9.75") right of the left seam line and 7.6 cm (3.0") above the lower air bag tether double stitched attachment point.

Both front restraint belt latch plates showed score marks which was indicative of frequent restraint usage which corroborated statements made by the driver that she and the right front occupant regularly use the restraint belts. However, there was no evidence of loading or transfers on the webbing of either belt that would indicate usage during this crash. The vehicle contained warning labels on the upside surface of both sunvisors cautioning the driver and right front occupant to use the restraint belts and the potential dangers associated with air bag deployments (refer to photographs #69, 86 on pages A-35, A-43).

Air Bag System

Supplemental Inflatable Restraint (SIR) System

Sensors

This vehicle was equipped with two Supplemental Inflatable Restraint (SIR) discriminating sensors. The forward discriminating sensor was mounted on the upper radiator support (refer to photographs #41-#43 on pages A-21, A-22) and the second discriminating sensor was mounted under the instrument panel (i.e., cowl area). The arming sensor was located under the center console (refer to photograph #42 on page A-21 for a map of various SIR components and their locations within the vehicle). Because the location of the impact was to the undercarriage of the vehicle, it was reasoned that the cowl discriminating sensor was the second sensor to close 13 milliseconds after the arming sensor closed.

Driver Side Air Bag

The vehicle was equipped with a dual air bag SIR system which deployed as the result of the impact with the parking lot island curb. The driver side air bag was nontethered with two

1.91 cm (0.75") diameter vent ports located in the 2 o'clock and 10 o'clock position. The air bag measured 61.0 cm (24.0") in diameter and was stitched along the periphery with a finished seam. On-scene police photographs (refer to photographs #66 on page A-33) indicated the steering wheel was rotated approximately 180^0 at the final rest position. There were black parallel striation marks on the air bag surface in the left and right quadrants (i.e., quadrants III and IV) which extended 7.6 cm (3.0") vertically from the perimeter and laterally 15.2 cm (6.0") spanning the centerline of the air bag. These marks were attributed to contact with the underside of the air bag module flaps during deployment.

There was a single 3.18 cm (1.25") long, 3.2 mm (0.13") width crescent shaped light red to pink colored transfer located at the vertical centerline of the air bag and 4.45 cm (1.75") from the perimeter near the bottom of the bag (i.e., quadrants III and IV). This mark appeared to be consistent with a typical cosmetic transfer (i.e., lipstick) observed in other crash investigations. However, the driver indicated that she was not wearing "make-up" at the time of the crash because she reportedly has a history of allergic reactions to these products. It was observed during the interview that the driver was wearing red finger nail polish. The transfer on the air bag may have been the result of contact by her hand during the deployment cycle, however, she indicated her hands were not injured in the crash.

The driver side air bag module cover opened along the typical "I" pattern tear points forming a left and right flap. Each flap measured 10.2 cm (4.0") laterally and 12.1 cm (4.8") vertically. The flap thickness measured 3.18 mm (0.125"). There was a heavy whitish powder residue on the right flap which was attributed to contact by the driver after the crash.

The air bag identification number was: [redacted]

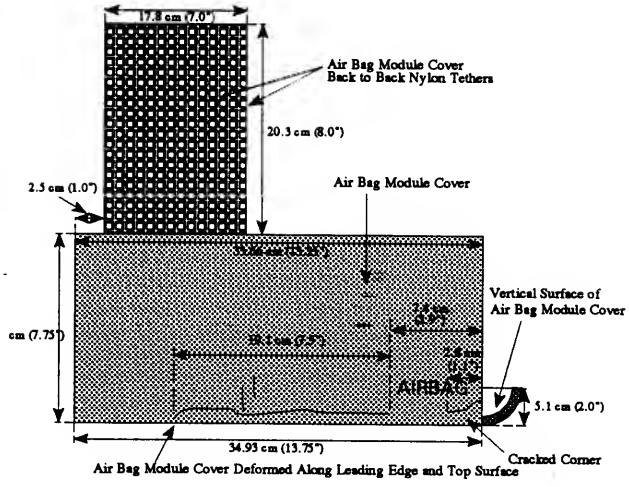
Passenger Side Air Bag

The right front passenger side air bag was a top mount design which incorporated a single air bag module cover. The cover was flush mounted to blend with the surrounding instrument panel. The air bag module cover measured 33.66 cm (13.25") in lateral width near the windshield edge and 34.93 cm (13.75") along the passenger side edge. The depth (i.e., front to back dimension) measured 9.69 cm (7.75"). The passenger side edge of the module cover extended vertically 5.1 cm (2.0") and was designed with a radius (i.e., bull nose) transition from the horizontal to vertical planes.

The module cover tether system consisted of two back to back nylon tethers which allowed the entire module cover to separate during deployment. The tethers measured 20.3 cm (8.0") in length and 17.8 cm (7.0") in width and were attached to the windshield edge of the air bag module flap at one end and the air bag module housing adjacent to the windshield (i.e., neck) at the other end. The tether was mounted 2.5 cm (1.0") inboard of the left cover edge.

Passenger Side Air Bag Module Cover

The air bag module flap separated along the predesigned tear points and contacted the windshield with the left side causing a spider web crack pattern and a black transfer from the right side adjacent to the right upper A-pillar.



The leading edge of the passenger side air bag module flap was deformed along a lateral area measuring 19.1 cm (7.5") on the vertical/horizontal surface. The pattern of the deformation suggested a downward fold (refer to photographs #88, #89 on pages A-44, A-45) which may have resulted from loading by the right front occupant during the deployment cycle. The right corner of the cover exhibited a crack which extended from the right edge inward 2.8 cm (1.1").

The passenger side air bag contained two tethers designed to limit the extrusion of the air bag into the occupant space while providing head and thoracic protection for the occupant. Each tether was attached to the air bag via a double row of stitching as shown in photograph #91 on page A-46. The top tether measured an extrusion distance of 14.0 cm (5.5") from the instrument panel while the bottom tether measured a distance of 35.6 cm (14.0") from the instrument panel. The tethers were secured laterally along the face of the air bag which measured 33.66 (13.25"). The width of the air bag at the upper tether was 37.47 cm (14.75") and 36.8 cm (14.5") wide at the lower tether. The longitudinal distance between tethers measured 30.6 cm (12.0"). The top tether was located 85.8 cm (33.75") down from the neck of the air bag module.

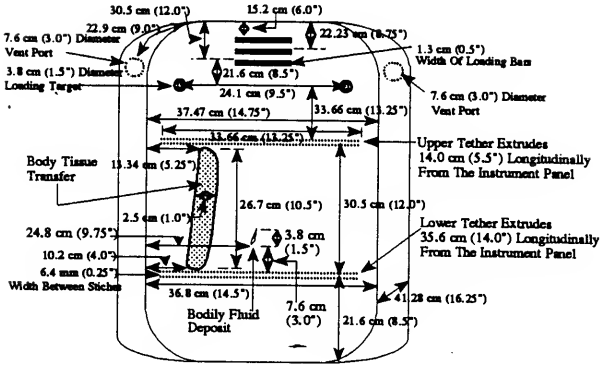
There two 7.6 diameter vent ports located on the left and right side panels of the air bag. These were positioned 22.9 cm (9.0") down from the neck of the air bag module.

The passenger side air bag was manufactured by a joint venture of [redacted] and [redacted] At the request of the vehicle manufacturer, the air bag fold pattern incorporated a type of folding that was described as an inverted "J" bubble fold pattern.

The "J" bubble fold pattern incorporated a folding and rolling pattern. The packaging process begins with the air bag drawn to its full length away from the neck of the module. The sides are folded down and toward the centerline of the bag until the width of the air bag corresponds with the lateral width of the air bag module opening. The bag is then be rolled under so that the unrolled portion of the air bag is on top. The rolled bag is positioned in the module cavity with one last fold of the air bag pulled over the top of the roll.

To facilitate the folding process, the air bag is pre-marked with a series of black loading bars and loading targets as noted in the following illustration. The loading bars were located centrally near the neck of the air bag module and the loading targets located near the lateral seam lines, 52.1 cm (20.5") down from the top of the air bag.

Passenger Side Air Bag



The passenger side air bag exhibited a heavy body tissue transfer and a bodily fluid deposit which was attributed to contact by the right front occupant (refer to photographs #92, #93 on pages A-46, A-47). The tissue transfer covered an area of 26.7 cm (10.5") in length and 2.5 cm (1.0") in width and was located between the upper and lower air bag tether double stitched attachment points. Laterally, the top of the transfer was located 13.34 cm (5.25") to the right of the left seam line while the bottom of the transfer was located 10.2 cm (4.0") from the left seam line. The bodily fluid deposit measured 3.8 cm (1.5") in length and was located 24.8 cm (9.75") right of the left seam line and 7.6 cm (3.0") above the lower air bag tether double stitched attachment point.

Both the tissue transfer and bodily fluid were evaluated by the state crime laboratory. The laboratory concluded the tissue transfer was skin and the bodily fluid was blood.

Diagnostic Energy Reserve Module (DERM)

The Electrically Erasable Programmable Read-Only Memory (EEPROM) of the DERM was read during the on-site investigation by a General Motors Corporation expert representative using a Tech 1 diagnostic unit. A printout of the EEPROM crash record codes was obtained and is included under Appendix E.

Pertinent data contained in the EEPROM is summarized in the following table:

Default codes	Four codes were noted which indicated that an air bag deployment event had occurred and the driver and passenger air bag initiator circuits were open (typical of a deployment event).
Engine ignition cycles	There were 2,593 ignition cycles prior to the crash event and two ignition cycles post crash event. This was consistent with two known engine ignition cycles post crash which involved the vehicle being backed off the curb by the police and the vehicle being towed to a secured storage lot.

Total time ignition on post crash	There were 127 minutes of ignition time recorded post crash which was largely due to towing.
Sensor closure interval	The discriminating sensor closed 13 milliseconds after the arming sensor closed. Both sensors remained closed for the maximum recorded time of 7.8 msec. The crash record did not show any additional sensor closure cycles (i.e., the arming sensor closing, opening, closing a second time).
Crash record	The EEPROM has the capacity to record seven crash records (i.e., a reusable DERM). There was only one crash record present in the EEPROM.
Restraint usage	The DERM monitors the status of the restraint belt indicator lamp (i.e., on/off) to determine belt latch status. The EEPROM stores data only on the status of the driver side restraint belt latch at the time of the crash. The EEPROM indicated the driver's restraint belt was not latched at the time of the crash (i.e., the restraint belt lamp was on). As a redundant feature of the system, the DERM also monitors the operational status of the lamp (i.e., burned out). The crash record did not show a code for a burned out lamp indicating the lamp was in operational condition at the time of the crash. The DERM lacked the hardware connection to monitor the status of the right front restraint belt latch. Therefore, there was no electronic data storage present on the EEPROM for this seat position.

VEHICLE SPEED

Speed Computation

A calculation of the vehicle's travel speed at the POI was computed using data stored in the Vehicle #1's EEPROM and the measured distances between contacted undercarriage components. The EEPROM data recorded a time interval of 13 milliseconds between the closure of the arming sensor and the closure of the discriminating sensor. Even though the front lower air deflector panel was the first component of the undercarriage to contact the curb, it was reasoned the flexibility of the panel (i.e., vinyl) imposed an insufficient delta V to close the arming sensor.

The second undercarriage contact point involved the front anti-sway bar. Due to the stiffness of this component and the observed concrete residue noted on the bar (refer to photographs #49, #50 on page A-25), it was hypothesized the magnitude of this contact was sufficient to decelerate the vehicle and close the arming sensor.

The vehicle continued forward 10.2 cm (4.0") where the leading edge of the engine cross frame member contacted the curb (i.e., skid plate). Given the stiffness of this component, it was assumed the discriminating sensor closed at this contact point.

Using the EEPROM sensor closure data and travel distance of 10.2 cm (4.0") between the anti-sway bar and the engine cross frame member, the formula V=d/t was used to calculate travel speed where V equals velocity, d equals distance, and t equals time. The travel speed of the vehicle at the POI was computed at 28.2 km/h (17.5 mph) as shown in the following table:

Metric	English
V = d/t V = 10.16 cm /13 msec (1 cm/1 m) (1 m/1 km)(1,000 msec/sec)(3,600/hr) V = 28.2 km/h	V = d/t V = 4.0"/13 msec (1'/12")(1 mi/5,280') (1,000 msec/sec)(3,600/hr) V = 17.5 mph

If the front lower air deflector panel was the initiator of the arming sensor closure (although unlikely due to the low stiffness properties), then the calculated travel speed would increase accordingly.

Using the computed travel speed of 28.2 km/h (17.5 mph) and a displacement value of 6.35 cm (2.5") [which included 5.1 cm (2.0") of the engine cross frame member crush and 1.25 (0.5") rearward movement of the engine cradle], a stopping time interval from the time of curb contact with the engine frame cross member to zero velocity (assuming a constant acceleration) was computed at 16.2 milliseconds with a 49.2 g-force (refer to appendix D for a discussion of the computation method used to derive these results).

COLLISION SEQUENCE

Pre-crash:

The driver of Vehicle #1 after completing work at her full time day job, arrived at the day care/preschool center at approximately 6:00 P.M. where she picked-up her five year grandson (a daily routine). The driver indicated she was listening to a news program on the radio en route to the day care, but indicated the radio was not on after departing the day care. She arrived at the day care at approximately 6:00 P.M. The day care rules required children to be picked-up no later than 6:00 P.M., in order to avoid a late pick-up fee.

The driver indicated she routinely uses the lap and shoulder belt and likewise places the restraint belt on her grandson. During the interview, she was very positive that both people were wearing their restraint belts before departing the day care. Another parent picking up her child indicated that she had spoken to the driver for the first time just after 6:00 P.M. as she was also putting her child in her vehicle. The other parent did not see the driver physically put the restraint belt on the boy, but from the amount of time the driver of Vehicle #1 had spent at the right front door she later concluded the boy had to be restrained. This person was also one of the

first people on-scene after the crash and initiated first aid procedures [i.e., mouth-to-mouth resuscitation, and coronary-pulmonary resuscitation(CPR)] prior to the arrival of rescue teams.

The driver had planned to pickup the evening meal at the restaurant which was 1.0 km (0.6 mile) from the day care. She departed the parking lot and traveled north on a two lane undivided highway where she turned right onto a divided four lane highway. After traveling on this roadway for one block, she made a right turn onto a local street where she made an immediate right turn into the driveway of the restaurant.

En route to the restaurant, the driver said the boy was very talkative. They had discussed the activities associated with picking-up the food at the restaurant. The boy indicated he wanted to stay in the vehicle and did not want to go into the restaurant. Her account of his mood was that he was very eager to return home so that he could play with neighborhood children. The child was described by the day care as being "all boy".

As the driver entered the restaurant property, she slowed down almost to a stop due to the spillway (i.e., dip) across the apron of the driveway. At this point, the vehicle was 45.7 m (150.0') from the POI. As the vehicle traveled past the front of the restaurant, the driver was looking to her left in search of a parking space. She observed that two parking spaces were vacant adjacent to the outdoor eating area at the northwest corner of the fenced area. The position of her head was verified by the injury she sustained to the right side of her face and neck from contact with the deploying driver side air bag. She made a left turn and struck the parking lot island curb.

The weather was clear with the sun low in the western sky. The driver was wearing nonprescription sunglasses, but indicated the sun was not a factor in the crash. The driveway/travel lane was not delineated with any pavement markings to guide patrons. It was bordered along the north side (i.e., right side of the vehicle's travel path) by two parking areas which were separated by a flower garden. The flower garden area protruded south toward the restaurant and narrowed the travel lane. From the angle of Vehicle #1's impact and final rest as marked by the police department (refer to photograph #28 on page A-14), it was determined the driver traveled over a portion of the second parking area (the northwest parking area) prior to making the left turn.

From police on-scene photographs, the northwest parking area appeared to be vacant of all vehicles with the exception of rescue vehicles. Given that the police were on-scene within three minutes of the crash, it was assumed there were no vehicles present in this area prior to the crash which would restrict the driver's travel path.

The slope of the travel path measured -4.4 percent at the POI and -1.7 percent cross slope in a northerly direction. The south side of the driveway/travel lane (i.e., left side of the vehicle's travel path) was bordered by the restaurant side walk, followed by the fenced outdoor eating area, and a curbed parking lot island which separated the travel lane from the south parking area (i.e., delineated parking spaces adjacent to the outdoor eating area). There was an opening between this island and the struck island measuring 7.2 m (23.6') which allowed traffic to enter the south parking area.

Given the proximity of the Vehicle #1 to the planned parking space, it appeared likely the driver was applying the brakes just prior to the crash. This braking action may have been sufficient to set the right front occupant in motion putting him in contact with the passenger side air bag system during the actuation of the air bag deployment cycle.

Crash:

It appears likely, the driver never saw the island curb prior to the crash due to her concentration on selecting a parking space. Additionally, the low position of the sun in the sky may have also contributed to the visibility of the situation. As the vehicle continued forward, the front lower plastic air deflector panel which was located 43.8 cm (17.25") rearward from the leading edge of the front bumper at the vehicle centerline contacted the curb face and was folded rearward as the vehicle continued forward (refer to photograph #47-#48 on page A-24). The curb was a barrier face type curb which measured 20.3 cm (8.0") in height at the left side of the vehicle contact and 20.96 cm (8.25") at the right side of the curb strike (refer to the scene schematic on page -5-). The ground clearance of the air deflector panel measured 12.1 cm (4.75").

The front anti-sway bar was the next component contacted which was located 43.2 cm (17.0") rear of the air deflector panel. At this point, the vehicle was traveling at a computed speed of 28.2 km/h (17.5 mph). Contact between the curb and this component appeared sufficient to close the arming sensor. The ground clearance of the bar measured 21.3 cm (8.4").

The vehicle continued forward 10.2 cm (4.0") and contacted the curb face with the leading edge of the engine cross frame member which was formed as a skid plate. At this point, the cowl discriminating sensor closed and the air bag system initiated the deployment sequence. The ground clearance measured 16.8 cm (6.6") at the undeformed edge and 21.3 cm (8.4") at the deformed edge. The skid plate was deformed rearward and upward 5.1 cm (2.0") as the vehicle continued forward.

The rack and pinion steering assembly was the next component contacted which resulted in a fracture of the housing and a rearward/upward displacement. Power steering fluid was released through the fracture point and spilled onto the ground.

The engine cradle was displaced rearward 12.7 mm (0.5") as the result of the contact sequence. The left front tire contacted the curb as noted in the scene photographs and subsequently rebounded slightly as noted in on-scene photograph #22 on page A-11.

The driver was in close proximity to the driver side air bag during the crash. Contusions to the right side of her face and neck indicated that she was looking to left at the time of the crash. The lack of restraint belt related injuries, the lack of any evidence on the restraint belt, and the data output from the SIR EEPROM indicated the driver was not wearing the three point manual lap and torso restraint belt at the time of the crash.

The right front occupant was also not restrained by the three point manual lap and torso restraint belt at the time of the crash. Contact evidence on the passenger side air bag (i.e., tissue

transfer), windshield, and windshield header along with the correlative injury pattern (i.e., head, face, neck, and upper left chest) indicated the occupant was not restrained at the time of the crash. Given the severity of his injuries and the kinematic pattern of being propelled upward into the windshield, the boy should have experienced chest and abdominal injuries (e.g., contusions, lacerated internal abdominal organs, etc.) associated with wearing a restraint belt. As shown in photograph #117 on page A-68, these type of injuries were not present on the body. The autopsy explored these areas and indicated there were no lower torso injuries.

Post Crash:

Final Rest:

The tires of Vehicle #1 did not override the curb face. The left front tire remained in contact with the curb at the final rest position (FRP). The vehicle was facing south with the wheels turned in a counterclockwise position. The steering wheel was rotated counter clockwise 180°.

Driver Activities:

The driver said the interior of the vehicle was filled with smoke from the air bag which restricted her visibility during egress activities. She claimed to experience difficulty in finding the door release handle. She indicated the right front occupant was laying across the center console with his head against the in-board side of the driver's seat back rest facing upward with his feet in front of the right front seat cushion. She removed the boy through the right door by lifting him by an arm and leg. She carried him into the restaurant and placed him on the floor.

A passer-by (the mother who had a chance meeting at the day care moments earlier) saw smoke coming out of the Vehicle #1 as she passed the restaurant on the four lane divided roadway. Sensing something was wrong, she entered the restaurant parking lot and saw the driver carrying the boy into the restaurant. She entered the restaurant and saw the boy laying on the floor. She immediately began first aid procedures which included mouth-to-mouth resuscitation and CPR (the passer-by was a registered nurse who had recently relocated to the area). She continued until rescue arrived on-scene.

Police Activities:

The local police department arrived on-scene within three minutes of the crash. They took control of the area and posted an officer at the vehicle to protect against any unauthorized entry into the vehicle. Photographs of the vehicle at the final rest position were taken (refer to photographs #19-#27 on pages A-10 through A-14) by the police department. The location of the tires at the FRP were then marked by the police with spray paint.

After the arrival of the tow truck, the police restarted the vehicle's engine and moved it back from the parking lot island. In so doing, the driver's seat was adjusted rearward to accommodate

the police officer. The vehicle's engine was then turned off.

The [redacted] ordered the vehicle held in secured storage pending this investigation. The whereabouts of the vehicle remained confidential in an effort to minimize the potential for evidence contamination.

Rescue Activities:

Rescue personnel arrived on-scene within three minutes of the crash (arriving only seconds before the police). They continued with first aid procedures started by the passer-by. A rescue helicopter responded and landed in the restaurant parking lot within ten minutes of the crash. The helicopter was at the scene for approximately twenty minutes when it departed for a nearby hospital with the boy on-board. It arrived at the hospital within five minutes.

Scene Clearance:

Vehicle #1 was removed from the scene via tow truck. The vehicle was towed with the front wheels raised up off the ground and the rear wheels free wheeling on the road surface. To accommodate this removal process, the ignition key was turned to the on position due to the transmission/steering interlock system. The vehicle was stored in a secured storage lot where access to the vehicle was restricted by a locked fence. The storage facility was located in a neighboring town approximately twenty miles away from the crash site.

HUMAN FACTORS

Occupant Data

	Driver	**Right Front Passenger**
Age/Sex:	42 year old female	5 year old male
Height:	160.0 cm (64.0")	105.0 cm (41.3")
Weight:	54.0 kgs (119 lbs.)	25.0 kg (55.1 lbs)
Manual Restraint System Usage:	Not wearing available 3-point webbing sensitive lap and torso belt	Not wearing available 3-point webbing sensitive lap and torso belt
Usage Source:	Vehicle inspection, Diagnostic Energy Reserve Module (DERM)	Vehicle inspection, medical examiner's report, crime lab report
Eyewear:	Sunglasses, non-prescription	None

	Driver	Right Front Passenger
Vehicle Familiarity:	The driver purchased the vehicle [redacted] 1994 and was the sole driver. It was used primarily for commuting to the work and was used often for lunch time transportation of fellow employees.	
Route Familiarity:	The driver was very familiar with the route as the right front passenger was transported daily to the preschool/day care which was 1.0 km (0.6 miles) from the crash scene. The driver reported patronizing the restaurant a couple of times per month.	
Trip Plan:	The driver traveled from her place of employment to the preschool/day care and picked up the right front passenger. She traveled along a two lane undivided roadway where she stopped at the stop sign and made a right turn onto a divided four lane roadway. She proceeded a short distance and made a right turn at the next intersecting local roadway. She then made an immediate right turn into the restaurant parking lot where she had planned to pickup takeout food for dinner. The distance from the preschool/day care to the location of the crash was measured to be 1.0 km (0.6 miles).	
Type of Medical Treatment:	None	Transported to a local hospital via helicopter where the patient was placed on life support. The patient expired the next day.

INJURY DATA

The driver sustained a large contusion over the right side of her face and neck resulting from contact with the driver side air bag during deployment. She did not seek medical evaluation or treatment. Her injuries are listed in the following table:

DRIVER INJURIES	SEVERITY (OIC/AIS)	SOURCE
Contusion of right cheek	290402.11	Driver side air bag
Contusion of the right neck	390402.11	Driver side air bag

Following the crash, the right front occupant was transported to a local hospital via helicopter where he was put on a life support system and stabilized. A team of medical doctors evaluated and monitored his condition throughout the evening and morning hours of the following day. Radiology tests, nonenhanced computerized tomography, and a cerebral profusion scan were performed as part of the evaluation process to determine brain activity. At 10:15 A.M. on the following day, the results of the neurologic exam and the cerebral perfusion study met the criteria for brain death and the patient was declared expired. He was left on the ventilator for an undetermined time after this pronouncement while the family coped with the situation.

The following table summarizes the injuries noted in the autopsy report. Several injuries cited in the report and included in the table did not receive an OIC/AIS severity code due to coding rules established by the Abbreviated Injury Scale - 1990 Revision (AIS-90) used by the National Accident Sampling System.

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
Head Lesions		
Non-expansile subgaleal hemorrhage in the following areas:		
1. Left frontal, left temporal, and left parietal scalp over an area 12 cm long and 9 cm high, 3 cm area over the left mastoid. Linear contusion of the left temple.	190402.12	Passenger side air bag
2. Right occiput, 6 cm x 3 cm area.	190402.11	Windshield header
Numerous, delicate, red linear hyperemic lines and slight distortion/wrinkling of the external surface of the skull involving:	Not codeable injuries	Passenger side air bag, windshield/windshield header

(Continued on the following page)

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
• Left parietal bone where the lines radiate outward from a central area on the lateral surface over an area measuring approximately 9 cm x 8 cm.	. . . . .	Passenger side air bag
• Right parietal bone where the lines radiate outward from a central area on the lateral surfaces over an area measuring approximately 9 cm x 8 cm.	. . . . .	Windshield header
• Right frontal bone where these areas radiate outward from a central point on the right forehead in a 6 cm x 6 cm area.	. . . . .	Windshield header
Fracture (9 cm long) of the coronal suture which was centered with respect to the sagittal suture.	Not a codeable injury	Passenger side air bag and windshield/windshield header
3. Contusions of the inferior surfaces of the right side of the frontal lobes, medial surfaces of the temporal lobes, medial surface of the left occipital lobe, and the corpus callosum.	140612.31	Windshield/windshield header
Supplemental Discussion: Scattered cortical contusions on the lateral surface of the right frontal lobe cortex adjacent to the upper margin of the temporal lobe. Contrecoup contusions right side of brain.		
4. Cortical hemorrhages are identified on the inferior surfaces of the left frontal lobe.	140612.32	Passenger side air bag
5. Subdural hemorrhage.	140652.49	Passenger side air bag, windshield/windshield header

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
Supplemental Discussion: Additional hemorrhages not visible on the surface of the brain are identified in the cortex of the medial left temporal lobe at the tentorium, medial surface of the left occipital lobe, medial surface of the left temporal lobe, and in the corpus callosum. A 0.5 cm diameter cortical contusion is present on the lateral surface of the right occipital lobe. Contusions on the surfaces of the right frontal, temporal, and occipital lobes are discrete hemorrhages confined to the cortex.		
6. Subarachnoid hemorrhage of the inferior frontal cortex. Blood was pooled in the subarachnoid space of the upper margin of the right temporal lobe in an area 4 cm x 4 cm.	140684.35	Windshield/windshield header
7. Ventricles of the brain compressed.	140670.39	Passenger side air bag, windshield/windshield header
Facial Lesions (Contusions):		
8. Linear horizontal contusion of the left upper eyelid and temple.	290402.12	Passenger side air bag
• Confluent contusions of the left lower cheek and surface of neck below and behind the left ear.	. . . . .	Passenger side air bag
• Contusions of the lips (inner mucosal surface of the upper lip was diffusely contused, distinct round to oval areas of mucosal contusions were present on the inner surface of lower lip).	. . . . .	Passenger side air bag
• Contusion of the tongue.	. . . . .	Passenger side air bag

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
Supplemental Discussion: The contusion begins on the midpoint of the eyelid as a downwardly oriented line that assumes a horizontal orientation at the lateral orbital rim. It crosses the left temple as a horizontal line that terminates on the upper margin of the pinna. Immediately beneath the contusion is a narrow strip (0.2 cm wide) of uninjured skin. Extending downward from and parallel to the contusion is an 8 cm wide by up to 2.5 cm high area of confluent contusion of the lateral orbital rim and temple.		
9. Bilateral bulbar conjunctival hemorrhages of the eyes (located at the lateral canthus of the left eye, and at the medial canthus of the right eye which measured 0.1 cm).	240416.13	Passenger side air bag
10. "L" shaped contusion and abrasion of the right and center of the forehead and left upper eyelid. The short leg of the "L" is on the right forehead and the long leg of the "L" crosses the center of the forehead and the left eye lid. The two legs intersect in a right angle located over the medial portion of the right eyebrow.	290402.11	Windshield header
Supplemental Discussion: The short leg of the right side of the face consists of two linear, parallel, diagonally oriented contusions located above the lateral margin of the right eyebrow. They are oriented from lower right to upper left. The contusion farthest from the eyebrow is approximately 3 cm long and 0.3 cm wide. The contusion nearest the eyebrow is 4 cm long and 0.4 cm wide. They are separated by a 0.2 cm wide band of uninjured skin. the long leg of the "L" begins at the upper medial end of the contusion closest to the eyebrow and consists of a delicate linear abrasion 6.5 cm long and 0.2 cm wide that courses downward and to the left across the center of the forehead and terminates on the left upper eyelid.		
11. Contusions and abrasions of 12. the right cheek.	290402.11 290202.11	Windshield Windshield

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
Facial Lesions (Laceration):		
13. Lacerations of the lips (laceration of the inner mucosal surface of the upper lip, laceration of the lower frenulum).	290602.18	Passenger side air bag
Facial Lesions (Abrasions):		
14. Confluent abrasion of the left eyelid, orbital rim and temple.	290202.12	Passenger side air bag
15. Linear and confluent abrasions of the left face and neck.	390202.12	Passenger side air bag
Fascia plane hemorrhages of the left neck and upper thorax.	Not a codeable injury	Passenger side air bag
Supplemental Discussion: Confluent abrasions of the left ear, left cheek, and left neck (abrasion of the outer surface of the left helix of the left ear, entire posterior surface of the lower half of the left ear was abraded over an area measuring 5 cm x 1.5 cm). Multiple linear to curvilinear abrasions located on the dorsal surface and tip of nose, left malar area, upper lip, and cheek.		
Cervical Spine Lesions:		
16. Complete separation of the intervertebral disc from the bodies of C_2 and C_3.	650299.26	Passenger side air bag
Laceration of the interspinous ligaments between C_1 and C_2.	Not a codeable injury	Windshield header, passenger side air bag
Protrusion of the odontoid process of C_2 into the spinal canal.	Not a codeable injury	Windshield/windshield header
17. Disruption of the upper spinal cord. Dislocation of C_2 .	640248.56	Passenger side air bag
Upper Thorax Lesions:		

RIGHT FRONT OCCUPANT INJURIES	SEVERITY (OIC/AIS)	SOURCE
18. Contusion of the left pectoral surface (a vertically oriented triangular area measuring 1.5 cm x 0.5 cm located on the left pectoral surface in the lateral clavicular line).	490402.12	Unknown
Contusion of the pectoral muscle underlying the pectoral surface contusion.	Not a codeable injury	Unknown
19. Stretching laceration of the inferior vena cava.	521202.37	Passenger side air bag
Extremity Lesion:		
20. Abrasion of the left wrist (inverted T-shaped).	790202.12	Unknown

OCCUPANT KINEMATICS

Driver

The driver was seated with the six way adjustable driver seat positioned in an almost full forward position. The seat back rest measured 45.7 cm (18.0") rearward of the center of the air bag module cover at a height of 48.3 cm (19.0") above the junction of the seat cushion with the seat back rest. The position of the seat was reset using police photographs taken prior to vehicle removal activities.

The driver was not wearing the available webbing sensitive manual three point lap and torso restraint belt at the time of the crash. She was looking to the left and turning the steering wheel to the left at the POI. It was likely she was applying the brakes as the vehicle was approximately 7 m (23') from the desired parking spaces adjacent to the outdoor eating area when the vehicle struck the parking lot island curb.

This braking action along with the deceleration forces from the undercarriage contacts moved her unrestrained body closer to the steering wheel. This placed the right side of her head, face, and neck within the deployment zone of air bag as noted by the resulting right facial and neck contusions she suffered. Her knees contacted the knee bolster on either side of the steering column as noted by the scuff marks. She rebounded back against the seat back rest where her sunglasses separated from her head and landed in the rear seat.

Right Front Occupant

The occupant was seated in the right front bucket seat which was adjusted to the full rear position on the seat tracks and the seat back angle reclined 16^0 from vertical. At this position, the leading edge of the seat cushion measured 41.9 cm (16.5") rearward from a vertical plane of the instrument panel. The seat back rest measured 72.4 cm (28.5") rearward of the instrument panel measured at height of 46.4 cm (18.25") above the junction of the seat cushion with the seat back rest.

The passenger was not wearing the available webbing sensitive three point manual lap and torso restraint belt at the time of the crash. As the driver approached the parking space, she was turning left and applying the brakes. These maneuvers set the passenger in motion toward the instrument panel. His head was facing to the right.

The occupant was in close proximity to the passenger side air bag module flap when the air bag began to deploy. Deformation to the leading edge of the air bag module cover suggested the passenger's head was in contact with the cover at the time of initial air bag deployment (refer to photographs #87-#88 on page A-44).

As the air bag deployed, the double stitching of the upper tether contacted the left side of his head and face (refer to photograph #102-#103 on pages A-53, A-54) resulting in a distinctive parallel contusion pattern. As the air bag continued to unfurl, the fabric of the air bag raked across the left side of the face. This was apparent from the extensive confluent abrasion pattern noted in the medical examiner's report.

His head was rotated clockwise and upward by the air bag. This was determined from the abrasion of the left side of the neck and the extension neck injury. The air bag rolled the Pinna (auricle) of the left ear forward resulting in an extensive abrasion to the posterior surface (refer to photographs #104-#105 on pages A-55, A-56). A large tissue transfer observed on the air bag surface located between the upper and lower tether stitch rows was confirmed by the state crime laboratory to be skin.

The extension rotational motion of the of cervical vertebrae resulted in the complete separation of the intervertebral disc from the bodies of C_2 and C_3, laceration of the interspinous ligaments between C_1 and C_2, dislocation of C_2, and the disruption of the upper spinal cord.

As the air bag continued to deploy, the passenger was propelled upward and struck the right side of his head/face on the windshield and windshield header. The right leg was extended under the instrument panel and contacted the hush panel as he moved upward.

The head/face contact resulted in tissue transfer to both the glazing and the fabric overlying the windshield header. Samples taken by the state crime laboratory verified these transfers as skin and hair. The right side of the skull sustained numerous, delicate, red linear hyperemic lines and slight distortion/wrinkling of the external surface of the skull. The coronal suture line was fractured and the brain sustained a subarachnoid hemorrhage, subdural hemorrhage, and numerous hemorrhages of the cortex which were consistent with striking a hard surface.

The head and neck were flexed downward as the mass of the body continued upward. This resulted in the flexion injury of the cervical vertebrae.

The medical examiner's report indicated the boy sustained an impact which was focused on the left side of the face and neck that resulted in a side-to-side compression of the skull and acceleration/deceleration injuries to the brain. The report further noted that the extension/flexion injuries to the upper neck suggest that the boy experienced vigorous backward/forward motion in addition to the side-to-side motion. Photographs of the body and the examiner's report indicated there were no lower torso (i.e., abdominal area) lesions (refer to photograph #117 on page A-68).

The right front occupant subsequently moved downward and rearward. He came to rest with his head against the in-board side of the driver seat back rest facing upward. His legs were located in front of the right front seat cushion.

He was removed from the vehicle through the right door by the driver who grabbed him by the leg and arm. The driver then carried him into the restaurant where he was placed on the floor.

CONCLUSION

Vehicle #1 was traveling in the parking lot at a computed speed of 28.5 km/h (17.5 mph) and struck the parking lot island curb. This impact initiated the deployment sequence of the dual air bag system. The computed travel speed appeared consistent with test runs even though the test vehicle lacked the same vehicle performance capabilities (i.e., engine, suspension, and braking) of Vehicle #1. It was likely Vehicle #1 could have been traveling at a higher rate of speed prior to the POI given the vehicle's high performance options.

Additionally, there was some question as to whether the driver had planned to stop in front of the restaurant and park in the parking area adjacent to the driveway entrance. A restaurant entrance door was located adjacent to this parking area.

The boy was unwilling to leave the vehicle according to the driver. His obstinate behavior may have caused her to change plans, opting instead to park in the south parking lot. From a practical standpoint, the view from the inside food order counter may have provided the driver with a better observational vantage point to watch the boy from inside the restaurant. While the vehicle was in this parking area, it is plausible that both occupants may have released their restraint belts at this time if indeed they were wearing them.

The restaurant had a drive-thru order/pickup window which the driver elected not to use. According to restaurant personnel, business was slow at the time of the crash. They indicated this was typical for evening hours as their main cliental patronize the establishment around the lunch hour. To emphasize this point, some of the counter help were either on the telephone (nonbusiness related) or doing maintenance duties while waiting for customers.

The driver indicated she was familiar with the restaurant, patronizing it a couple of times per month. She did not express any concern about the parking lot layout or the presence of the parking lot island curb during previous visitations. The placement of the vehicle at the POI suggested the driver would have had to steer sharply to the left in order to park in the parking spaces previously described.

The driver's activities on the day of the crash may have had an effect on the cause of the crash. The driver had worked a full day and was concerned about arriving on-time at the day care (prior to the six o'clock deadline) to avoid a late charge. This coupled with the boy's refusal to leave the vehicle may have distracted the driver to the presence of the parking lot island curb.

Vehicle braking would have been a reasonable response by the driver given the relative distance of the struck curb to the intended parking space was 7.0 m (23.0'). Additionally, the angle of the vehicle at the FRP indicated the driver may have steered to the right prior to making the left turn. This combination of vehicle maneuvers (braking and turning) may have been sufficient to set the right front passenger in motion prior to the POI.

The 13 msec time interval between sensor closures would have been insufficient time for the boy to move forward and contact the passenger side air bag at the time of deployment. With the seat adjusted to the rear most position on the seat tracks, the distance from the seat back rest to the leading edge of the air bag module flap measured 72.4 cm (28.5"). Allowing 51.6 cm (8.5") for the depth of the boy plus the possibility that the boy did not have his back against the seat back rest, it would have taken 64 msec for the boy to travel 50.8 cm (20.0") at the calculated velocity of 28.5 km/h (17.5 mph) in order to reach the instrument panel.

Therefore, the right front occupant was either too close to the instrument panel (i.e., sitting on the edge of the seat and leaning forward against the air bag module cover) or he moved forward in response to hard braking by the driver prior to the POI.

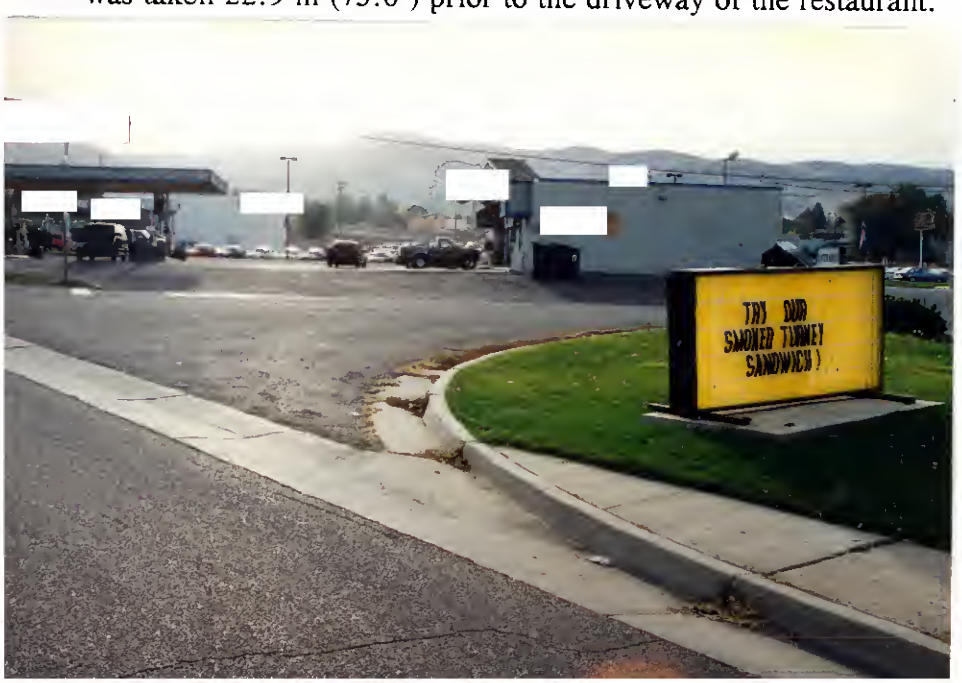
The contact evidence on the air bag module cover, air bag, windshield, and windshield header indicated the right front passenger was propelled upward by the air bag. Injuries to his face, head, neck, and upper thorax support this kinematic pattern.

To accomplish this kinematic pattern, the right front occupant had to be unrestrained. If the the restraint belt was used in some combination (e.g.,lap only used with the torso belt behind the back, etc.), then occupant's movement would have been greatly restricted and he would not have contacted the windshield/windshield header. If he had contacted these components while wearing the restraint belt, then his torso (especially the abdominal area) would have experienced some type of restraint belt related trauma (e.g., contusions of the skin, laceration of internal organs, etc.). There were no such related lesions noted in the photographs or by the medical examiner's office.

The driver was also not restrained by the restraint belt as noted in this report. She, however, made adamant statements to the contrary that she was wearing her restraint belt at the time of the crash. Injury data (contusions on the right side of her face and neck), scuff marks on the knee bolster, and the data contained in the EEPROM do not support her statements.

Select Prints
Calspan Case No. 95-20

1. View of Vehicle #1's trajectory (1994 Chevrolet Camaro Z28 convertible) eastbound on a four divided highway prior to making a right turn into an intersecting local street. This view was taken 22.9 m (75.0') prior to the driveway of the restaurant.



2. View of Vehicle #1's trajectory eastbound on the four divided highway at the intersection with the local street 15.2 m (50') prior to the restaurant driveway.

3. View of Vehicle #1's trajectory at the junction of the local roadway and restaurant driveway.

4. Look back view of Vehicle #1's trajectory showing the over all approach to the restaurant.

5. Another view of Vehicle #1's trajectory into the restaurant driveway.

6. Trajectory of Vehicle #1 - 45.7 m (150.0') prior to the point of impact (POI).

7. Trajectory of Vehicle #1 - 30.5 m (100.0') prior to the point of impact (POI).

8. Trajectory of Vehicle #1 - 22.9 m (75.0') prior to the point of impact (POI).

9. Trajectory of Vehicle #1 - 22.9 m (75.0') prior to the point of impact (POI) as viewed from between the four lane divided roadway and the restaurant driveway.

10. Trajectory of Vehicle #1 - 15.2 m (50.0') prior to the point of impact (POI) and viewed from the restaurant driveway.

11. Trajectory of Vehicle #1 - 15.2 m (50.0') prior to the point of impact (POI) and viewed from between the four lane divided roadway and the restaurant driveway.

12. Trajectory of Vehicle #1 - 7.6 m (25.0') prior to the point of impact (POI) with the curbed parking lot island.

13. Trajectory of Vehicle #1 showing the POI with the parking lot island curb.

14. Closer view of the POI. Leakage of power steering fluid from Vehicle #1's fractured rack and pinion housing can be seen by the darkened asphalt surface at the base of the curb.

15. Close-up view of the curb showing contact by Vehicle #1's undercarriage.

16. Close-up view of the curb showing contact by Vehicle #1's left front tire.

17. Overhead view of the POI showing the undercarriage contact pattern and the left front tire contact.

18. Overhead close-up view of the undercarriage contact with the curb showing concrete fragments separated during the crash.

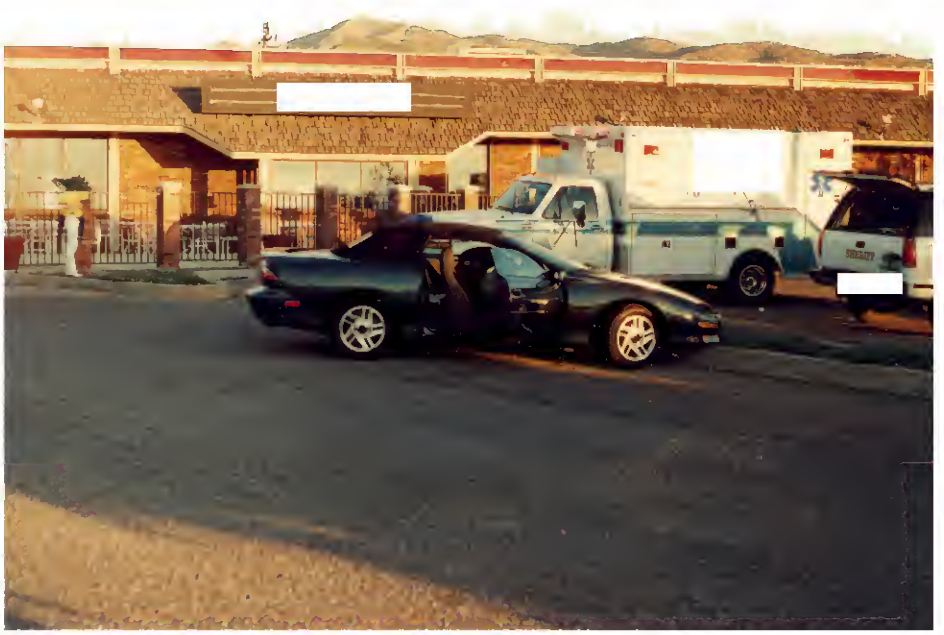
19. On-scene police photograph of Vehicle #1's final rest position (FRP) taken along its precrash direction of travel.

20. On-scene police photograph of Vehicle #1 at the FRP.

21. On-scene police photograph of the left front corner of Vehicle #1 at the FRP.

22. On-scene police close-up photograph of the left front corner of Vehicle #1 at the FRP.

23. On-scene police photograph of Vehicle #1 at the FRP looking in a southerly direction.



24. On-scene police photograph of Vehicle #1 at the FRP.

25. On-scene police photograph of Vehicle #1 at the FRP looking in the reverse direction of pre-impact travel.

26. On-scene police close-up photograph of Vehicle #1's right front tire and fender at the FRP.

27. On-scene police photograph of Vehicle #1's frontal plane at the FRP.

28. Reverse view of the FRP looking longitudinally through the center of Vehicle #1's lateral axis.

29. Reverse view of Vehicle #1's pre-impact trajectory from a point west of the FRP.

30. Reverse view of Vehicle #1's pre-impact trajectory from a point west of the FRP along the parking lot island curb. Note the relative location of the parking spaces in the background near the building to the POI which were the intended destination of the driver.

31. Reverse view of Vehicle #1's pre-impact trajectory from a point 7.6 m (25.0') east of the FRP.

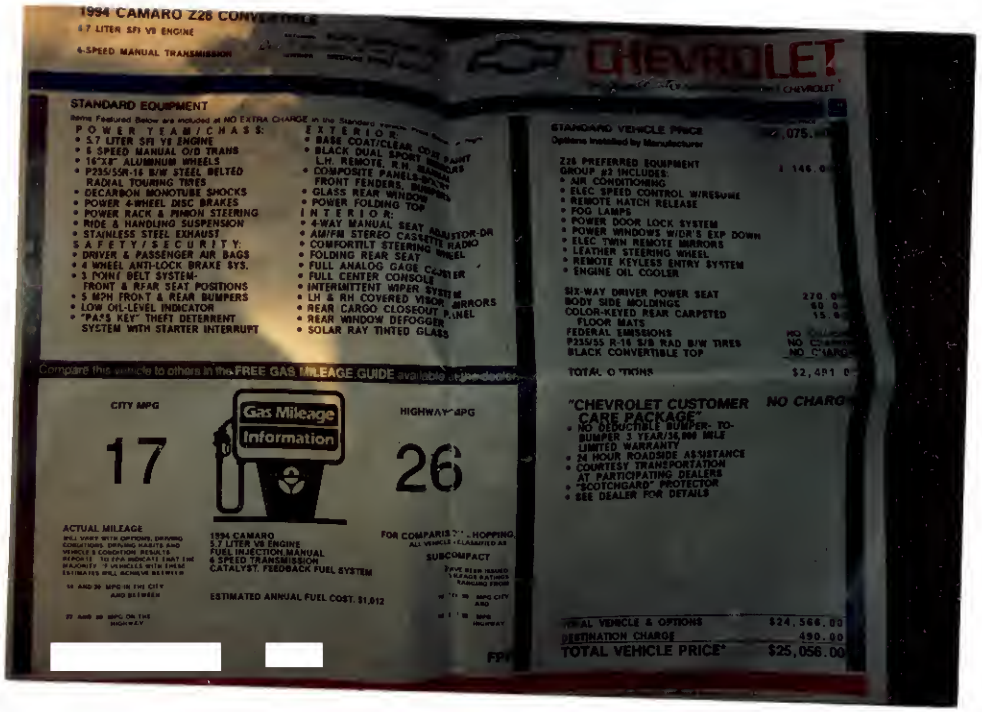
32. Reverse view of Vehicle #1's pre-impact trajectory from a point 15.2 m (50.0') east of the FRP.

33. Reverse view of Vehicle #1's pre-impact trajectory from a point 22.9 m (75.0') east of the FRP.

34. Reverse view of Vehicle #1's pre-impact trajectory from a point 30.5 m (100.0') east of the FRP.

35. Reverse view of Vehicle #1's pre-impact trajectory from a point 45.7 m (150.0') east of the FRP.

36. Reverse view of Vehicle #1's pre-impact trajectory showing the junction of the driveway with the local roadway.

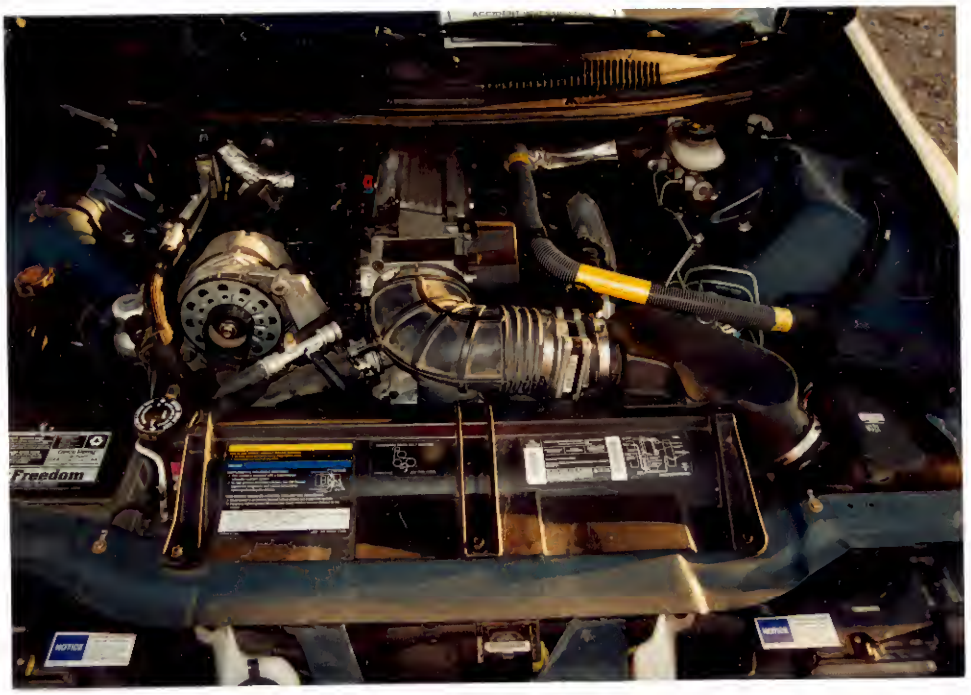


37. View of Vehicle #1's manufacturers equipment list.

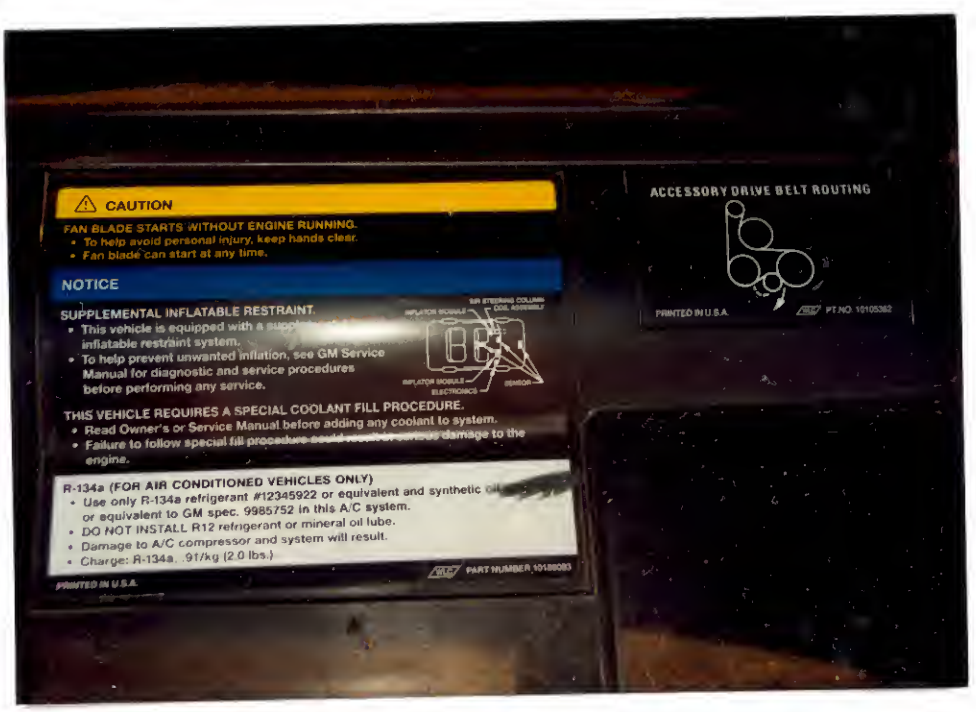
38. Frontal view of Vehicle #1.

39. View of the windshield and convertible roof.

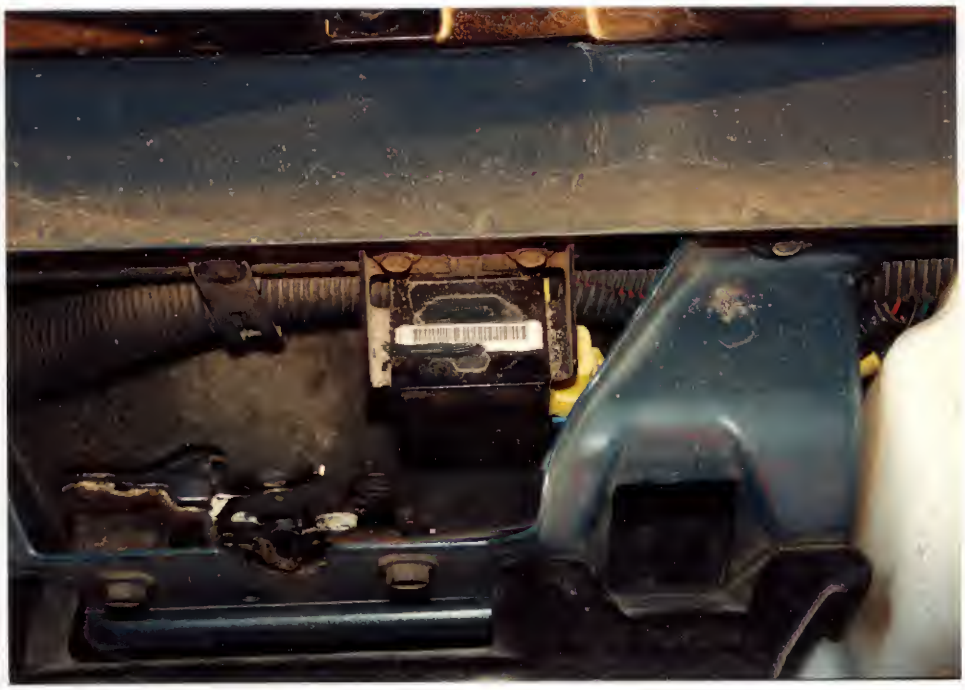
40. View of Vehicle #1's engine compartment.



41. View of Vehicle #1's engine compartment showing the location of the Supplemental Inflatable Restraint (SIR) system discriminating sensor mounted on the leading edge of the upper radiator support bracket and a map of SIR sensor locations.



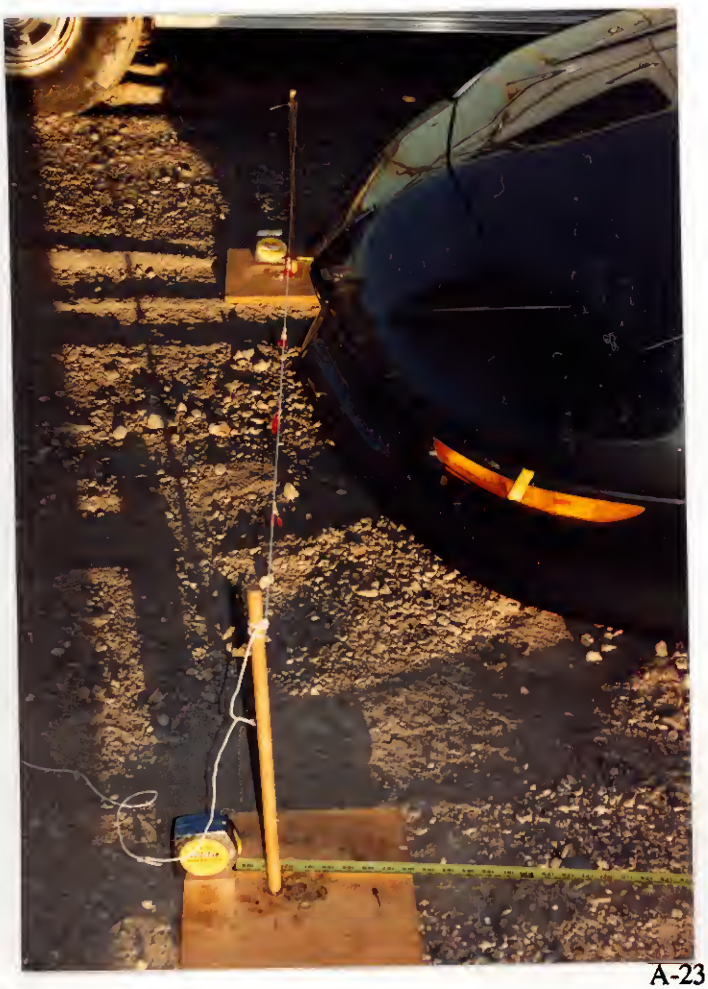
42. Close-up view of the SIR component map.



43. Close-up view of the discriminating sensor mounted on the leading edge of the upper radiator support.

44. Overhead view of the frontal plane with respect to the original vehicle specifications from the right side of the vehicle.

45. Overhead view of the frontal plane with respect to the original vehicle specifications from the front of the vehicle.

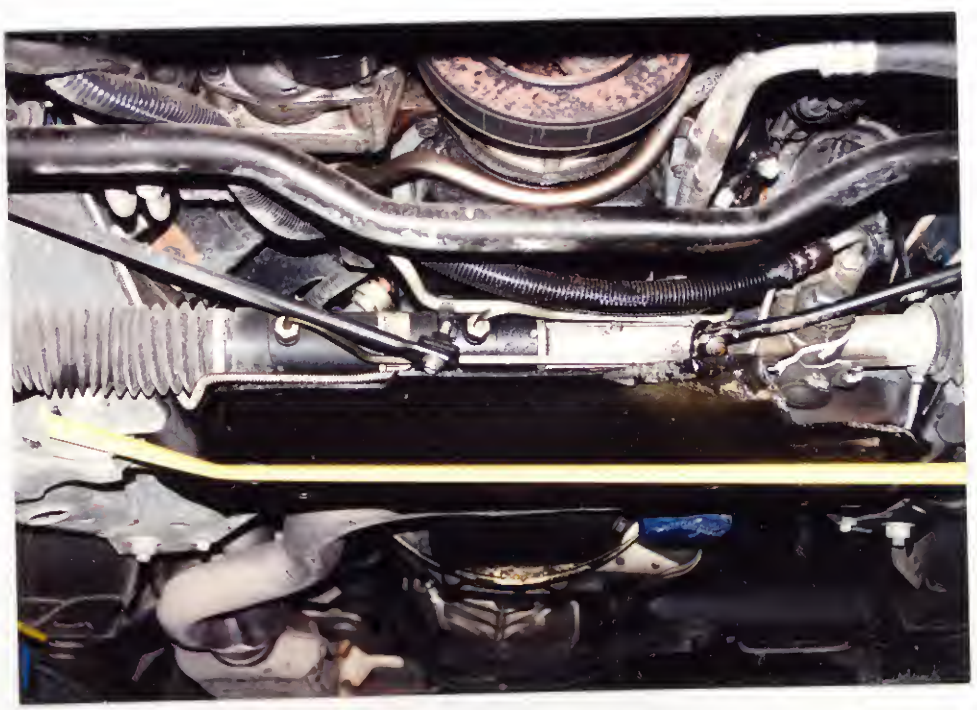


46. Overhead view of the frontal plane with respect to the original vehicle specifications from the left side of the vehicle.

47. View of the front air dam showing curb impact gouges .

48. Another view of the front air dam with the vehicle raised in the air.

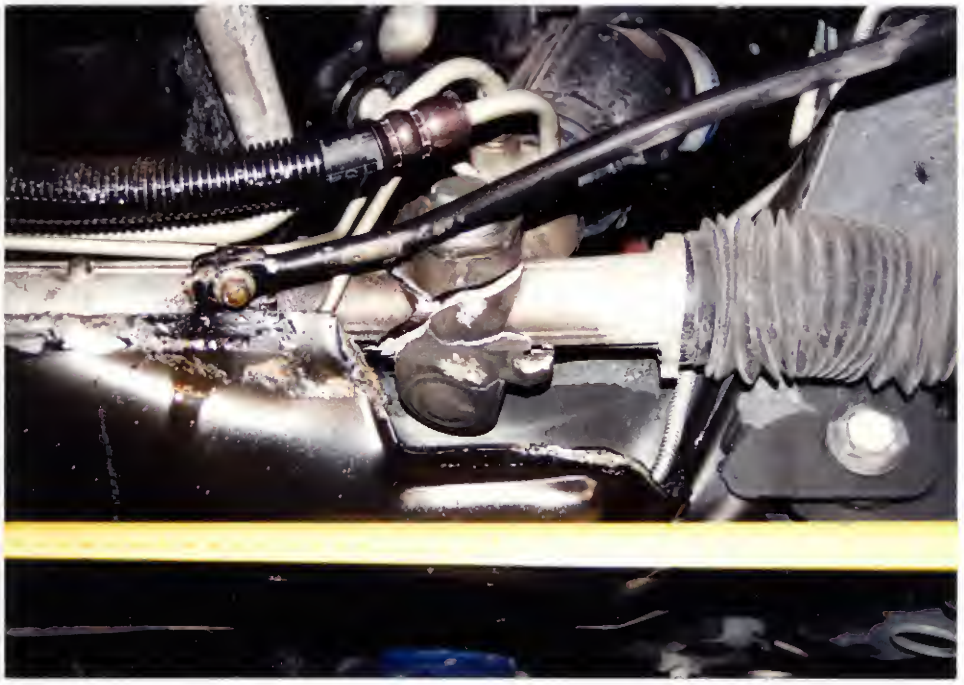
49. Overall view of undercarriage components. The primary areas of interest include the front air dam at the top of the photograph, the front anti-sway bar, the leading edge of the engine frame cross member (i.e., skid plate), and the rack and pinion power steering housing.



50. Closer view of the front anti-sway bar, the skid plate, and the rack and pinion power steering housing.

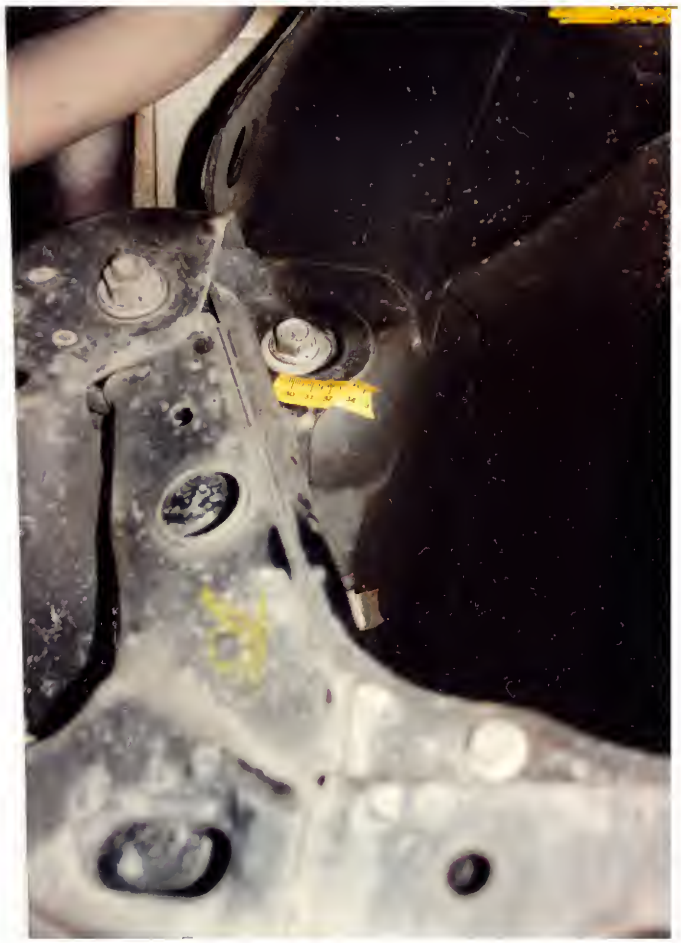
51. Another view of the skid plate and the rack and pinion power steering housing.

52. Angular view of damaged undercarriage components as seen from the left side of the vehicle.



53. Close-up view of the skid plate deformation and the fractured rack and pinion housing.

54. View of the 12.7 mm (0.5") rearward movement of the engine cradle as measured at the left rear engine cradle bolt.



55. View of the 4.8 mm (3/16") lateral movement of the engine cradle measured at the right rear engine cradle bolt.

56. Lateral view of the engine frame cross member with the left side of the vehicle at the top of the photograph and showing the longitudinal displacement of the cross member illustrated by its close proximity to the exhaust pipe.

57. Left front corner view.

58. Perpendicular view of the left front fender.

59. Overall view of the left side plane.

60. Left rear corner view.

61. Right rear corner view.

62. Angular view of the right side plane.

63. Lateral view of the right side plane.

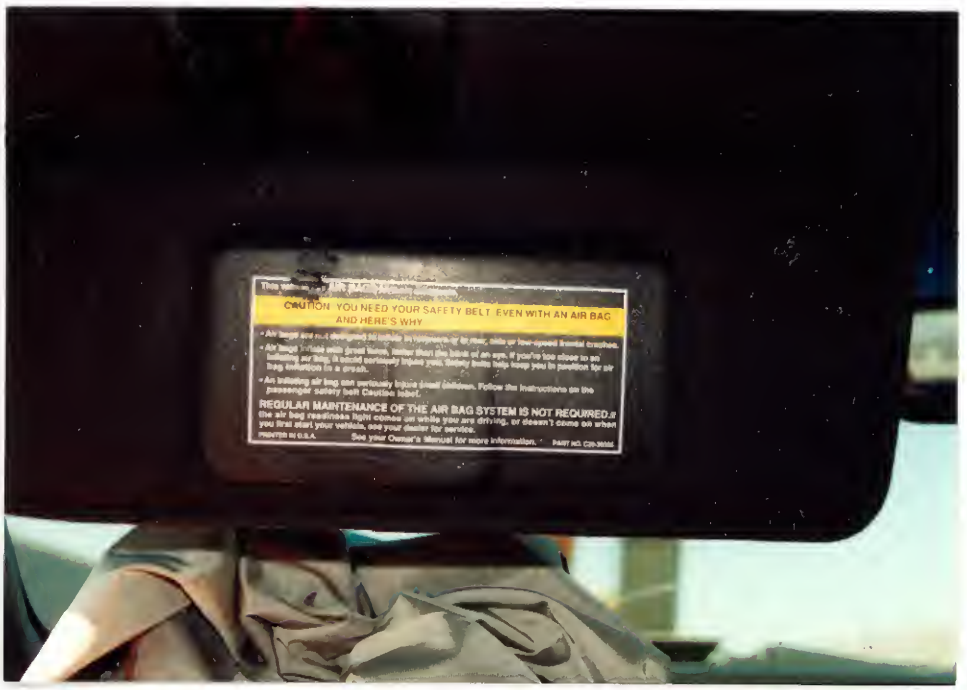
64. Right front corner view.

65. Police on-scene photograph of Vehicle #1 showing the crack in the windshield which resulted from contact by the air bag module cover.

66. Police on-scene photograph of the driver side air bag.

67. Police on-scene photograph of the passenger side air bag.

68. Police on-scene close-up photograph of the passenger side air bag.



69. View of the air bag warning label on the up side of the driver side sunvisor.

70. View of the driver side air bag.

71. View of the driver side air bag production identification number.

72. View of a pink/reddish transfer mark located near the bottom area of the driver air bag.

73. Angular view of the driver side knee bolster.

74. Contact evidence on the left side of the driver side knee bolster.

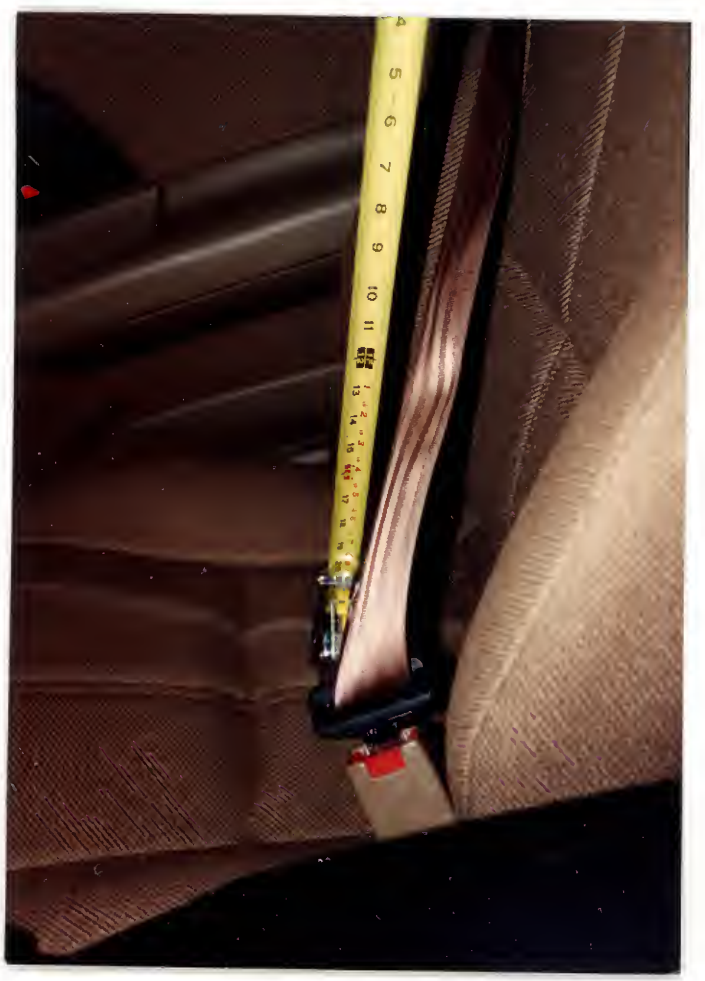
75. Contact evidence on the right side of the driver side knee bolster.

76. View of the steering column shear plate and capsules which shows no movement from occupant loading.

77. View of the driver side restraint belt latch plate.

78. Lateral view of both front seats taken from the left side of the vehicle. The driver's seat was rearward of its at crash position in this photograph.

79. Lateral view of the right front seat with a tape measure extended 58.4 cm (23.0") above the seat cushion.



80. View of the right front restraint in the latched position.

81. Angular view of the right front instrument panel showing the passenger air bag in the deployed mode and the air bag module cover resting inverted on the top of the instrument panel.

82. Similar angle view as the previous photograph with the passenger air bag folded back into the air bag module and the air bag module cover repositioned accordingly.

83. View of contacts by the right front occupant on the windshield and windshield header which were noted by yellow calibrated tape.

84. Closer view of the windshield and windshield header contact points. The star pattern in the windshield and dark transfer mark near the A-pillar on the windshield were the result of contact by the passenger side air bag module cover during the deployment sequence.

85. Close-up view of the windshield and windshield header contact points.

86. View of the air bag warning label on the up side of the right front sunvisor.

87. View of the passenger side air bag module cover held in the vertically extended position.

88. Close-up view of the leading edge of the passenger side air bag module cover.

89. Close-up view of the top surface of the passenger side air bag module cover.

90. Overall view of the passenger side air bag.

91. Closer view of the passenger side air bag showing the upper and lower tether attachment points which can be seen by the two double lateral red stitch rows. These rows measured 33.66 cm (13.25") in length and were 30.5 cm (12.0") apart.

92. Close-up view of the passenger side air bag showing body tissue transfer from the right front occupant which encompassed an area of 26.7 cm (10.5") in length and 2.5 cm (1.0") in width.

93. Close-up view of the body tissue transfer in relationship to the lower tether strap.

94. Angular view of the right front instrument panel with the passenger air bag placed back into the air bag module.

95. View of the glove compartment door and the hush panel (i.e., horizontal panel under the glove compartment).

96. Closer view of the right side of the hush panel showing a cloth transfer mark.

97. Lateral view of the right front seat with the restraint belt attached and the air bag unfurrowed.

98. A closer view of the right front seat.

99. Rearward facing angular view of the right front seat.

"GRAPHIC"
PHOTOGRAPHS AND IMAGES

The following "GRAPHIC" Photographs and Images have been removed from this case.

Photo # 100 - 114, 117

If you would like a copy of these photographs and/or images please write to:

MARJORIE SACCOCCIO
VOLPE NATIONAL TRANSPORTATION SYSTEMS CENTER
55 BROADWAY
CAMBRIDGE, MA 02142

In the body of your request please include the case, photograph and image number(s).

115. X-ray view taken from the right side of the cervical vertebrae with the neck in the extension position. Note the rearward position of the odontoid bone into the spinal canal.

116. View of the neck in the flexion position.

Appendix B

Police Accident Report

TIME — MONTH [redacted] YEAR 95 — DAY OF WEEK [redacted] — MILITARY TIME 1810 — CASE NUMBER [redacted]

PLACE WHERE ACCIDENT OCCURRED: COUNTY [redacted] CITY OR TOWN [redacted]

Accident was outside city limits — indicate distance from city limits or nearest town ____ MILES ☐ NORTH ☐ S ☐ E ☐ W of ____ CITY OR TOWN

FOR AGENCY USE

D.L.D. USE ONLY

LOCATION

ROAD ON WHICH ACCIDENT OCCURRED: [redacted] GIVE NAME OF STREET OR HIGHWAY NUMBER — RAMP NO. — INTERSECTION TYPE

1. AT ITS INTERSECTION WITH ____

2. IF NOT AT INTERSECTION ____ FEET ☐ NORTH ☐ S ☐ E ☐ W of [redacted] Parking Lot — NEAREST INTERSECTION, STREET, HOUSE NO. LANDMARK

____ TENTH OF A MILE ☐ NORTH ☐ S ☐ E ☐ W OF MILE POST ____ BE SURE TO COMPLETE IF ROAD HAS MILE POST

STATE/LOCAL

VEHICLE #	YEAR	MAKE	MODEL	BODY STYLE/TYPE CODE	VEHICLE COLOR	G.V.W.R.	DESC. OF CARGO CODE	COMMERCIAL VEHICLE (Reg 12,000 lbs. or more)
1	94	Chevrolet	Camaro	2dr.	Blue			INTERSTATE ☐ INTRASTATE ☐

VEHICLE IDENTIFICATION NUMBER: 2G1FP32PXR2[redacted] — DISPOSITION OF VEHICLE CODE [redacted] Towing — NO. OF AXLES (INCLUDING ALL TRAILERS) — DIR OF TRAVEL: South

US DOT / ICC MC	LICENSE PLATE INFO	YEAR	MONTH	STATE	NUMBER	PARTS DAMAGED	U / T	COST OF REPAIR
		96	4	[redacted]	[redacted]	1,3 and 5		$ 4000.-

	FIRST	INITIAL	LAST	STREET, CITY, STATE, ZIP, PHONE NO.	PHONE ( )
OWNER / OPERATOR / CARRIER	[redacted]	[redacted]	[redacted]	[redacted]	
DRIVER	[redacted]	[redacted]	[redacted]	[redacted]	

DRIVER'S LICENSE STATE	NUMBER	DATE OF BIRTH	AGE	SEX	INJURY: SAFE EQUIP	TYPE	CAUSE	AREA	EXTRI	EJECTION	THROUGH WHAT AREA EJECTED?
[redacted]	[redacted]	[redacted]									

DRIVER'S EDUCATION (1. PUBLIC 2. COM'L 3. NONE 4. UNKN)	YEARS DRIVE EXP.	LICENSE CLASS	ENDORSEMENT	RESTRICTIONS
4	U	D	—	None

INSURANCE COMPANY	EFFECTIVE DATE	EXPIRATION DATE	POLICY NUMBER
[redacted]	[redacted]	[redacted]	[redacted]

INSURANCE APPEARS VALID YES ☒ NO ☐ — AGENCY THAT SOLD POLICY [redacted] — ADDRESS — PHONE ([redacted]

VEHICLE #	YEAR	MAKE	MODEL	BODY STYLE/TYPE CODE	VEHICLE COLOR	G.V.W.R.	DESC. OF CARGO CODE	COMMERCIAL VEHICLE (Reg 12,000 lbs. or more)
								INTERSTATE ☐ INTRASTATE ☐

VEHICLE IDENTIFICATION NUMBER — DISPOSITION OF VEHICLE CODE — NO. OF AXLES (INCLUDING ALL TRAILERS) — DIR OF TRAVEL

US DOT / ICC MC	LICENSE PLATE INFO	YEAR	MONTH	STATE	NUMBER	PARTS DAMAGED	U / T	COST OF REPAIR
								$

	FIRST	INITIAL	LAST	STREET, CITY, STATE, ZIP, PHONE NO.	PHONE ( )
OWNER / OPERATOR / CARRIER					
DRIVER					

DRIVER'S LICENSE STATE	NUMBER	DATE OF BIRTH	AGE	SEX	INJURY: SAFE EQUIP	TYPE	CAUSE	AREA	EXTRI	EJECTION	THROUGH WHAT AREA EJECTED?

DRIVER'S EDUCATION (1. PUBLIC 2. COM'L 3. NONE 4. UNKN)	YEARS DRIVE EXP.	LICENSE CLASS	ENDORSEMENT	RESTRICTIONS
☐				

INSURANCE COMPANY	EFFECTIVE DATE	EXPIRATION DATE	POLICY NUMBER

INSURANCE APPEARS VALID YES ☐ NO ☐ — AGENCY THAT SOLD POLICY — ADDRESS — PHONE ( )

OCCUPANTS

	1. PEDESTRIAN 2. BICYCLIST	NAME	ADDRESS	DATE OF BIRTH	AGE	SEX	INJURY: TYPE	CAUSE	AREA
1	13	[redacted]	[redacted]	5 m 5 5 4 3 1					

☒ ORIGINAL REPORT ☐ SUPPLEMENTAL REPORT ☐ AMENDED REPORT

DIAGRAM WHAT HAPPENED BELOW.

Reason For No Diagram _____

1 Officer not at scene

2 Vehicles moved

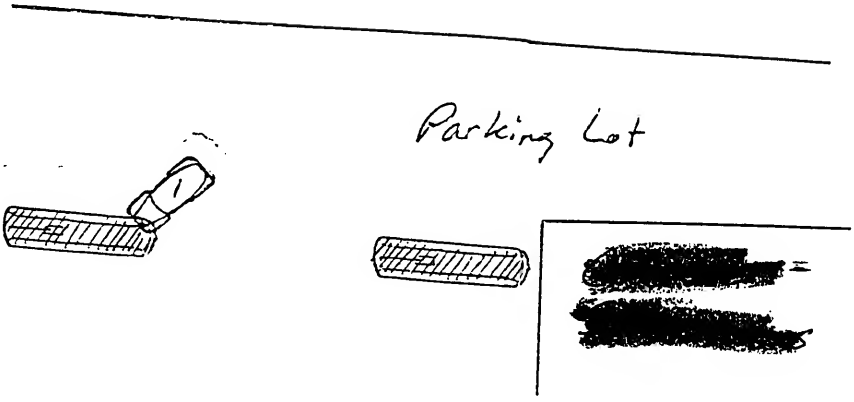
3 Other _____

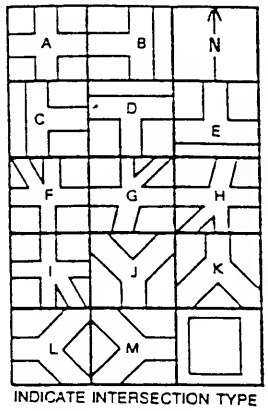
CASE NUMBER [redacted]

INDICATE DIRECTION OF NORTH

VEHICLE NO. 1 NO. _____

ESTIMATED TRAVEL SPEED	5 to 10
ESTIMATED IMPACT SPEED	5 to 10
POSTED SPEED	None
ADVISORY SPEED	Ø





INDICATE INTERSECTION TYPE

DESCRIBE WHAT HAPPENED (Refer to Vehicle by Number)

Vehicle #1 struck curb of Planter box in a parking lot at [redacted]. Vehicle #1 drove directly into the direction of Bright sunlight.

If Hazardous Materials were involved list the placard number from off the commercial vehicle:

DAMAGE TO PROPERTY OTHER THAN VEHICLES Cement Curb $ 100.-

Name object and state nature and amount of damage ESTIMATE

Name and address of owner of object struck [redacted]

WITNESSES

Name [redacted] Address [redacted] Phone [redacted]

Name [redacted] Address [redacted] Phone [redacted]

8 FIRST AID ADMINISTERED BY

1 - Policeman, 2 - Fireman, 3 - Ambulance Personnel, 4 - Paramedics, 5 - Doctor, 6 - Private Individual, 7 - Hospital, 8 - Helicopter Personnel, 9 - None Administered, 0 - Unknown

EMS REPORT NO. [redacted]

EMS REPORT NO. [redacted]

5 INJURED TAKEN BY

1- Ambulance, Private
2- Ambulance, Fire
3- Paramedics
4- Private Vehicle
5- Helicopter
6- Other

TIME: Amb. Called: 1810 Arrived: 1813

INJURED TAKEN TO [redacted]

POLICE ACTIVITY

[redacted] 95 Date Notified of Accident (Month, Day, Year)

1810 Time Notified of Accident (USE MILITARY TIME)

1813 Arrived at Scene

Investigation of accident Completed at 2330 of [ ]

Source of Information

Officer at scene _____

Driver No. _____ Contacted station

Other [redacted]

the same day [X] the 7th day following

PHOTO(S) TAKEN YES ☑ NO ☐

VIDEO TAKEN YES ☒ NO ☐

FIELD DIAGRAM YES ☒ NO ☐

Name _____ Charge: _____

Name _____ Charge: _____

CVSA Inspection Yes _____ No _____ If Yes, Report Number _____

Other action taken _____

PRINT [redacted]

OFFICER'S RANK AND NAME	I.D. NO.	PATROL DIVISION	DEPARTMENT	SUPERVISORS APPROVAL	DATE OF REPORT
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] 95

State Law requires that report be forwarded to Dept. of Public Safety within 10 days following completion of the investigation. Mail ORIGINAL OF REPORT TO: Driver License Division Financial Responsibility Sectio[redacted]

IF A QUESTION DOES NOT APPLY, ENTER AN "X", IF ANSWER IS UNKNOWN ENTER "U", OTHER EXPLAIN IN DESCRIPTION

DI-9 Rev. 12/93

1

Accident Severity
1. No Injury
2. Possible Injury
3. Bruises & Abrasions
4. Broken bones or bleeding wounds
5. Fatal

Type of Collision

SEE LIST ABOVE ON BACK OF FRONT COVER

TYPE OF ACCIDENT — 15

1. MV - Pedestrian
2. MV - MV
3. MV - Train
4. MV - Bicycle
5. MV - Animal (Wild)
6. MV - Fixed Object
7. MV - Other Object
8. Overturned
9. Ran Off Roadway - Thru Median
R. Ran Off Road - Right
L. Ran Off Road - Left
A. Other Non-Collision
D. MV Animal (Domestic)

1st Event — 16
2nd Event — 17
3rd Event — 18

2 TRAFFIC CONTROL
1. Officer or watchman
2. Flagman
3. Traffic Signal
4. Traffic Signal (Flashing)
5. Stop Sign
6. Yield Sign
7. Railroad Gates or Signal
8. Other (Specify)
9. No Control Present
A. Slow or Warning Sign
B. Traffic Lanes Marked
C. No Passing Lanes
D. One-Way Road or Street
E. Construction or Work Area

CONTRIBUTING CIRCUMSTANCES

PRIME CONTRIBUTOR — VEHICLE #1,3,5 — 19
VEHICLE #2,4,6 — 20
SECONDARY CONTRIBUTOR — VEHICLE #1,3,5 — 21
VEHICLE #2,4,6 — 22

00 Did Not Contribute
01 Speed Too Fast
02 Failed To Yield Right of Way
03 Drove Left of Center
04 Improper Overtaking
05 Passed Stop Sign
06 Disregard Traffic Signal
07 Followed Too Closely
08 Made Improper Turn
09 Had Been Drinking
10 Under The Influence Of Drugs
11 Eyesight Defective Uncorrected
12 Asleep
13 Fatigued
14 Ill
15 Improper Parking
16 Improper Lookout
17 Failed To Signal
18 Other Improper Driving
19 Brakes Defective
20 Headlight Insufficient or Out
21 Headlights Glaring
22 Other Lights or Reflectors Defective
23 Steering Mechanism Defective
24 Tires Defective
25 Windshield Not Clear
26 Other Defective Condition of Vehicle
27 Hit and Run
28 DUI
29 Non-Collsion (Fire)
30 Collision (Fire)
40 Stolen
41 Non-Contact Vehicle Involved
42 Jackknife
43 Downhill Runaway
44 Cargo Loss or Shifted
45 Explosion or Fire
46 Separation of Units
47 Wrong Side of Road
48 Wrong Way on One Way Street
49 Improper Backing
50 Immersion

3 ALIGNMENT (ROADWAY CHARACTER)
1. Straight and Level
2. Grade Straight
3. Hillcrest Straight
4. Curve Level
5. Curve Grade
6. Curve Hillcreet
7. Dip Straight
8. Dip Curve

4 WEATHER
1. Clear
2. Raining
3. Snowing
4. Fog
5. Dust
6. Mist
7. Sleeting
8. Cloudy
9. Windstorm

SURFACE CONDITIONS — 5
1. Dry
2. Wet
3. Muddy
4. Snowy
5. Icy
6. Oily

ALTERED VEHICLE
1. Suspension
2. Body
3. Tinted Windows
4. Other
5. None
VEHICLE #1,3,5 — 23
VEHICLE #2,4,6 — 24

VEHICLE MANEUVER (DRIVER INTENT) — VEHICLE #1,3,5 — 25
01. Go Straight Ahead
02. Overtake (Passing)
03. Make Right Turn
04. Make Left Turn
05. Make U Turn
06. Slow or Stop
07. Start In Traffic Lane
08. Start From Parked Position
09. Back
10. Remain Stopped In Traffic Lane
11. Remain Parked
12. Changing Lanes

ROADWAY CONDITIONS — 6
1. Holes or Ruts In Shoulder
2. Holes, Ruts, Bumps in Roadway
3. Loose Material
4. Obstruction Not Lighted (Darkness)
5. Obstruction Not Marked (Daylight)
6. Road Under Construction
7. Roadway Repairs
8. Obstruction - Previous Accident
9. Other - Specify In Remarks

COLLISION WITH OBJECT — VEHICLE #2,4,6 — 26
OBJECT STRUCK
A. Guardrail
B. Guardrail End Section
C. Utility Pole
D. Sign Post
E. Delineator Post
F. Bridge Culvert or Other Highway Structure
G. Curb
H. Curb or Safety Island
I. Fence
J. Rigid Barrier (Concrete)
K. Crash Attenuator
L. Dirt Embankment/Ditch/Berm (Mountainside)
M. Wild Animal
N. Domestic Animal
O. Snow Embankment
P. Mailbox
Q. Traffic Channelization Device
R. Tree Shrubbery
S. Building Other Structure (Wall)
T. Other

LIGHT — 7
1. Daylight
2. Dawn
3. Darkness Street or Highway Not Lighted
4. Darkness Street or Highway Lighted
5. Dusk

DRIVER VISION OBSCURED — VEHICLE #1,3,5 — 29
1. Not Obscured
2. Rain, Snow, Etc. on Windshield
3. Windshield Otherwise Obscured By Vehicle Load
4. Vision Obscured By Vehicle Load
5. Trees, Crops, Etc.
6. Building
7. Embankment
8. Signboard
9. Hillcrest
10. Parked Vehicles
11. Moving Vehicles
12. Sun or Headlight Glare
13. Other
VEHICLE #2,4,6 — 30

KIND OF LOCALITY — 8
1. Manufacturing/Industrial
2. Shopping/Business
3. Residential
4. School
5. Farms and Fields
6. Open Country
7. Church
8. Playground
9. Railroad Tracks

PAVEMENT SURFACE TYPE — 31
1. Concrete
2. Blacktop (Bituminous)
3. Brick or Block
4. Gravel; Stone
5. Dirt
6. Other

ROADWAY FLOW — 9
1. Divided Highway (Median Strip)
2. Divided Highway (Guardrail)
3. Divided Highway (Other Barrier; or Barrier Type Unknown)
4. Not Physically Divided
5. One Way Traffic
6. Unknown

Alcohol/Drug Test — VEHICLE #1,3,5 — 32
1. No Test
2. Blood
3. Breath
4. Other
5. Unknown
6. Refused
7. Post Mortem
8. Drug Scan
VEHICLE #2,4,6 — 33
PEDESTRIAN — 34

Pedestrian/Bicyclist Action
01. Crossing At Intersection - With Signal
02. Crossing At Intersection - Against Signal
03. Crossing At Intersection - No Signal
04. Crossing At Intersection - Diagonally
05. Crossing Not At Intersection
06. Walking In Roadway - With Traffic
07. Walking In Roadway - Against Traffic
08. Standing on Median Island In Crosswalk
09. Other Standing In Roadway
10. Getting On or Off Bus
11. Getting On or Off Other Vehicle
12. Pushing or Working on Vehicle In Roadway
13. Other Working In Roadway
14. Playing In Roadway
15. Coming From Behind Parked Cars
16. Hitching on Vehicle
17. Lying In Roadway
18. Vending In Roadway
19. Other In Roadway
20. Not In Roadway
21. Riding In Roadway With Traffic
22. Riding In Roadway Against Traffic
23. Walking To or from School
00 Not Stated

Alcohol/Drug Test Results — VEHICLE #1,3,5 — 35
Alcohol enter B.A.C.
VEHICLE #2,4,6 — 36
Drug enter.
D.P. for Drug Scan Positive
D.N. for Drug Scan Negative
PEDESTRIAN — 37

PEDESTRIAN — 38

10 NUMBER OF LANES ON ROADWAY

11 NUMBER OF VEHICLES INVOLVED

WHICH VEHICLE OCCUPIED
1. Vehicle No. 1
2. Vehicle No. 2
O. Other

POSITION IN/ON VEHICLE
Addition Positions In and Outside of Vehicle
50. Sleeper Section of Cab (Truck)
51. Other Passenger In Enclosed Passenger or Cargo Area
52. Other Passenger In Unenclosed Passenger or Cargo Area (Motorcycle)

13	23	33	43
12	22	32	42
11	21	31	41

54. Trailing Unit
55. Riding on Vehicle Exterior
88. Unattended Vehicle
99. Unknown

12 | 13 | NAME — 14 | ADDRESS | AGE | SEX | SAFE EQUIP | INJURY: TYPE | CAUSE | AREA | EXTRICATION | EJECTION | THROUGH WHAT AREA EJECTED?

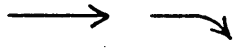
TYPE OF COLLISION

01 Opposite directions
Both vehicles straight
Head On

02 Opposite directions
One vehicle straight
One vehicle turning left

03 Same direction
Both vehicles straight
Rear End

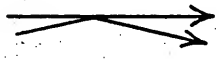
04 Same direction
One vehicle straight
One turning right
Rear End



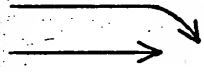
05 Same direction
One vehicle straight
One turning left
Rear End

06 Opposite directions
Both straight
Side Swipe

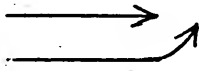
07 Same direction
Both straight
Side Swipe



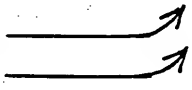
08 Same direction
One vehicle straight
One turning right



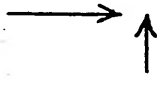
09 Same direction
One vehicle straight
One turning left



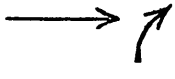
10 Same direction
Both vehicles turning left



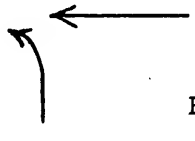
11 Both vehicles straight
Approaching at an angle



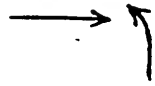
12 One vehicle straight
One coming from right
turning right



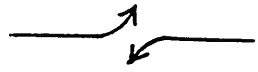
13 One vehicle straight
One coming from left
turning left



14 One vehicle straight
One coming from right
turning left



15 Opposite directions
Both vehicles turning left

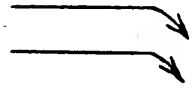


16 Other
(Do not use unless necessary)

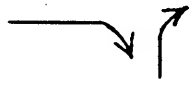
17 Single vehicle

18 Backing

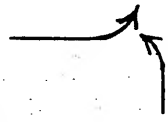
19 Same direction
Both vehicles turning right



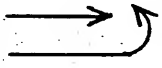
20 Approaching at an angle
Both vehicles turning right



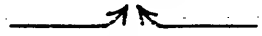
21 Approaching at an angle
Both vehicles turning left



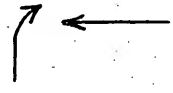
22 One vehicle straight
One vehicle making U-Turn



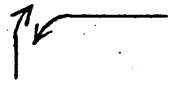
23 Opposite directions
One turning left
One turning right



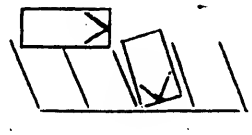
24 One vehicle straight
One coming from left
turning right



25 Approaching at an angle
One turning left
One turning right



26 One vehicle moving
One vehicle parked



PLACE WHERE ACCIDENT OCCURRED

County

COUNTY _____

Indicate the county where the accident occurred. Do not abbreviate.

Code the two digit number representing the county using the following list:

01	Beaver	21	Iron	41	Sevier
03	Box Elder	23	Juab	43	Summit
05	Cache	25	Kane	45	Tooele
07	Carbon	27	Millard	47	Uintah
09	Daggett	29	Morgan	49	Utah
11	Davis	31	Piute	51	Wasatch
13	Duchesne	33	Rich	53	Washington
15	Emery	35	Salt Lake	55	Wayne
17	Garfield	37	San Juan	57	Weber
19	Grand	39	Sanpete		

Body Style/Type Code

Enter the body style or type of vehicle: for example, 2-door sedan, sta.wag., pickup, etc. Also put the two-digit code describing the vehicle type in the space provided by using the following codes:

01 Passenger car - regular
02 Passenger car - compact
03 Passenger car & house trailer
04 Passenger car & boat
05 Passenger car & other trailer
06 Passenger car - public owned
07 Pickup or panel
08 Pickup or panel & house trailer
09 Pickup or panel & boat
10 Pickup or panel & other trailer
11 Pickup or panel & public owned
12 Pickup with camper
13 Single Unit enclosed box (Minimum 2 axles & 6 tires)
14 Truck & trailer
15 Truck tractor-Bobtail (power unit only)
16 Tractor & short trailer
17 Commercial Bus
18 School Bus
19 Motorcycle
20 Motorcycle - public owned
21 Motor driven bicycle (scooter or moped)
22 Ambulance - not emergency
23 Ambulance - emergency
24 Ambulance - public owned
25 Farm tractor and/or equipment
26 Special Mobile Equipment (Construction, Fire, UP&L, etc.)
27 Truck & Mobile Home
28 Other. Horse-drawn carriage (plane, etc.)
30 ATV, 3 & 4 wheelers
31 Truck & 2 short trailers (95' total length)
32 Truck & long trailer (77' total length)
33 Tractor - 2 short trailers (trailer up to 28' each)
34 Tractor - 2 trailers (95' total length)
35 Tractor - 2 long trailers (permitted to 105' freeway)
36 Tractor-long trailer-short trailer (98' total length)
37 Tractor - 3 short trailers (permitted to 105' feet freeway)
38 Tractor & long trailer
40 Hit & Run Vehicle
41 Cargo Tank
42 Passenger car w/vehicle in tow
43 Pickup w/vehicle in tow
44 Tractor w/tractor in tow
45 Motorhome
46 Motorhome w/boat or vehicle in tow
47 Flatbed
48 Dump Truck
49 Concrete Mixer
50 Garbage/Refuse
51 Auto Transporter

Safety Equipment

Indicate the types of safety equipment each driver or occupant(s) was using at the time of the accident. Use the following code list:

1 Lap belt used
2 Lap & shoulder belt used
3 Belts not used
4 Belts not installed
5 Child restraints used
6 Air bag inflated with belts
7 Air bag inflated/without belts
8 Helmet worn
9 Eye protection used
0 Helmet & eye protection used
A Shoulder belt only
B Other
C Unknown

Extrication - Fill in appropriate number	Ejection
0 - Not extricated	1 - Not ejected
1 - Extricated	2 - Partially ejected
9 - Unknown	3 - Fully ejected

Description of Cargo

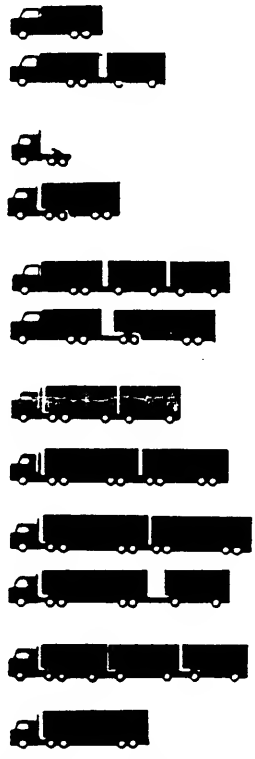
A. General Freight
B. Household Goods
C. Heavy Machinery
D. Motor Vehicles
E. Gases in Bulk
F. Livestock
G. Solids in Bulk
H. Liquids in Bulk
I. Explosives/Hazardous Materials*
J. Refrigerated Foods
K. Empty
L. Other*

*List in accident description

EXAMPLE:

Body Style/Type Code

13 Single Unit Truck
14 Truck and Short Trailer
15 Truck Tractor - Bobtail (Power Unit Only)
16 Tractor & short trailer
31 Truck and 2 Short Trailers
32 Truck and Long Trailer
33 Tractor - 2 Short Trailers
34 Tractor - 2 Trailers
35 Tractor - 2 Long Trailers
36 Tractor - Long Trailer Short Trailer
37 Tractor - 3 Short Trailers
38 Tractor & long trailer



Disposition Of Vehicle Code

1 Towed
2 Impounded
3 Retained by owner/driver
4 Hit and run

*Source of Carrier Name

1 Side of truck
2 Paperwork
3 Driver

Injury Type-Cause Area

Type

Indicate the type of injury suffered in the accident, using these codes:

1 - No injury
2 - Possible injury
3 - Bruises & abrasions
4 - Broken bones or bleeding wounds
5 - Fatal

Cause

Indicate the object that caused the injury using these codes:

1 - Steering Wheel
2 - Dashboard/Windshield
3 - Roof
4 - Other Interior
5 - Motorcycle handbars
6 - Motorcycle gas tank
7 - Exterior vehicle part
8 - External object

Area

Indicate the area of the victim's body that suffered the most severe injury using these codes:

1 - Head
2 - Face
3 - Neck
4 - Chest
5 - Back
6 - Leg(s)
7 - Arm(s)
8 - Torso
9 - Unknown

Appendix C

Air Bag Supplement Form

Dup. Cols. 1-8 from prior card | Module A B | Format Q 1 | AIRBAG SUPPLEMENT | AB-1

ACCIDENT SUMMARY

ACCIDENT DATE [redacted]/95

POLICE INVESTIGATED (1,2,9)* 1

City [redacted] County [redacted]

GENERAL LOCALITY 2
(1) Freeway, Limited Access
(2) Urban (City)
(3) Urban-Rural (mixed)
(4) Rural, Fields

CONFIGURATION (First Harm) 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe-Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) NonImpact Deployment
(9) Unknown

FIRE INVOLVED (0) None 0
(1) AirBag Vehicle
(2) Other Vehicle
(3) Both Vehicles
(9) Unknown

NUMBER: VEHICLES INVOLVED (8)=8 or more 1
PERSONS INVOLVED 2
INJURED PERSONS 2

MAXIMUM AIS IN ACCIDENT 5

OTHER VEHICLE: MAXIMUM AIS NA

PRIME/DEPLOY IMPACT w AB VEH: EVENT NUMBER NA

CDC __ __-__ __ __ __-__

TOTAL DELTA-V NA

Model Year, Make, Model, Body Type:

* (1)=Yes, (2)=No, (9)=Unknown

AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED [redacted]/95

REASON VEHICLE NOT INSPECTED 1

(0) Not Required
(1) Inspection Completed
(2) Cannot be Located**
(3) Repaired or Destroyed**
(5) Refual or Impounded**
(7) Other*
**Specify:

IMPACT DATA OBTAINED 4

(0) No Data Obtained
(1) CDC Only
(2) Crush Profile Only
(3) Trajectory Data Only
(4) CDC and Crush Profile
(5) CDC and Trajectory
(6) Crush and Trajectory
(7) CDC, Crush & Trajectory

BASIS OF DELTA-V 0

(0) Not Computed (Unknown Why)
(1) CRASH - Damage Only
(2) CRASH - Damage+Trajectory
(3) Missing Vehicle Algorithm
(4) Yielding Object Algorithm
(5) Unknown Basis
(6) One Vehicle Beyond Scope
(7) Collision Beyond Scope
(8) Insufficient Data

VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN ANY PRIOR IMPACTS (1,2,9)* 2

HAS ANY PRIOR MAINTENANCE/SERVICE BEEN PERFORMED ON SYSTEM(1,2,9)* 2

*Describe:

AIRBAG VEHICLE: FLEET

VIN 2G1EP32 [redacted] (Serial # omitted)

MILEAGE 27,012 Km

DRAFT - [redacted]85

SYSTEM READINESS LAMP
(In Instrument Cluster)

PRE-IMPACT LAMP CONDITION

(1) Functioning/ProvedOut
(2) Inoperative
(9) Unknown

→ 1

DRIVER'S REPORT OF PRE-IMPACT FLASHING

(00) No Flashing Reported
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not App (system removed)
(99) Unknown

→ 0 0

PERIOD OF PRE-IMPACT FLASHING

(0) No Flashing
(1) Same Day as Impact
(2) Prior Day
(3) Prior Two Days
(4) Prior Week
(5) Prior Month
(6) Over One Month
(9) Unknown

→ 0

POST-IMPACT LAMP CONDITION

(1) Functioning/ProvedOut
(2) Inoperative EEPROM, Ignition
(9) Unknown

→ 1

POST-IMPACT FLASHING

(00) No Flashing
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not Appl (removed)
(99) Unknown

→ 1 2

AIRBAG VEHICLE FIRST HARMFUL EVENT → 35

(01) Fire or explosion
(02) Immersion
(03) Gas Inhalation
(04) Fell from vehicle
(05) Injured in vehicle
(06) Other noncollision (specify):
(07) Overturn
(08) Jackknife with intraunit damage
Collision With:
(09) Pedestrian
(10) Pedalcyclist
(11) Railway train
(12) Animal
(13) Motor vehicle in transport (same roadway)
(14) Motor vehicle in transport (other roadway)
(15) Parked motor vehicle
(16) Other type nonmotorist (specify):
(17) Thrown or falling object
(18) Boulder
Collision with Fixed Object:
(20) Building
(21) Impact attenuator/Crash Cushion
(22) Bridge pier or abutment
(23) Bridge parapet end
(24) Bridge rail
(25) Guardrail
(26) Concrete traffic barrier
(27) Median barrier
(28) Other longitudinal barrier (specify):
(29) Highway/Traffic sign post
(30) Overhead sign support
(31) Luminaire/Light support
(32) Utility pole
(33) Other post, pole, or support (specify):
(34) Culvert
(35) Curb
(36) Ditch
(37) Embankment-earth
(38) Embankment-rock, stone or concrete
(39) Fence (wooden, wire, chain link, etc.)
(40) Wall (stone, rock, metal, etc.)
(41) Fire hydrant
(42) Shrubbery
(43) Tree
(44) Other fixed object (specify):
(45) Pavement surface irregularity (pothole, grooved, grates)
(99) Unknown

AIRBAG VEHICLE IMPACT SUMMARY

VEHICLE ROLE: 1

(0) Non-collision
(1) Striking Unit
(2) Struck Unit
(3) Both Striking and Struck
(9) Unknown

MANNER OF LEAVING SCENE: 2

(1) Driven
(2) Towed-due to damage
(3) Towed - not for damage
(4) Towed - details unknown
(5) Abandoned
(9) Unknown

NUMBER OF IMPACT EVENTS: 1
(8) 8 or more, (9) Unknown

ROLLOVER: 0
(0) No Rollover
(1) First Event
(2) Subsequent Event
(3) Yes, Unknown Event
(9) Unknown

OVERRIDE/UNDERRIDE: 1

(1) No over/underride
(1) Override - 1st CDC
(3) - Other CDC
(4) Underride - 1st CDC
(6) - Other CDC
(9) Unknown

AIRBAG VEHICLE DAMAGE

CODES: (1) Yes, DAMAGED
(2) No Damage
(9) Unknown

LEFT FRONT FENDER DAMAGE: 2

RIGHT FRONT FENDER DAMAGE: 2

CENTER TOP OF GRILLE DAMAGE: 2

FRONT BUMPER E.A. STATUS: Left: 1

(1) Normal Right: 1
(2) Extended
(3) Partial Compression
(4) Complete Compression
(5) Not Applicable
(9) Unknown

FIRST AIRBAG VEHICLE IMPACT:

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) Nonimpact Deployment
(9) Unknown

CDC 12 - FDLW - 2

OBJECT CONTACTED: _____

PRIMARY/DEPLOYMENT IMPACT:

EVENT NUMBER: 1

TOTAL DELTA-V: 99

LONGITUDINAL DELTA-V: 99

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) Nonimpact Deployment
(9) Unkonwn

CDC 12 - FDLW - 2

OBJECT CONTACTED: curb

NOTES:

AIRBAG SYSTEM DAMAGE	
CODES: (1) Yes, Damaged* (2) No, Intact (8) Not App.(Removed) (9) Unknown	
AIRBAG MODULE	2
SENSORS: Left Front	8
Center Front	2
Right Front	8
Rear, (Cowl)	2
DIAGNOSTIC MODULE	2
WIRING	2
KNEE DIVERTER	2
INDICATION OF DISCONNECTED OR LOOSE ELECTRICAL CONNECTORS	2

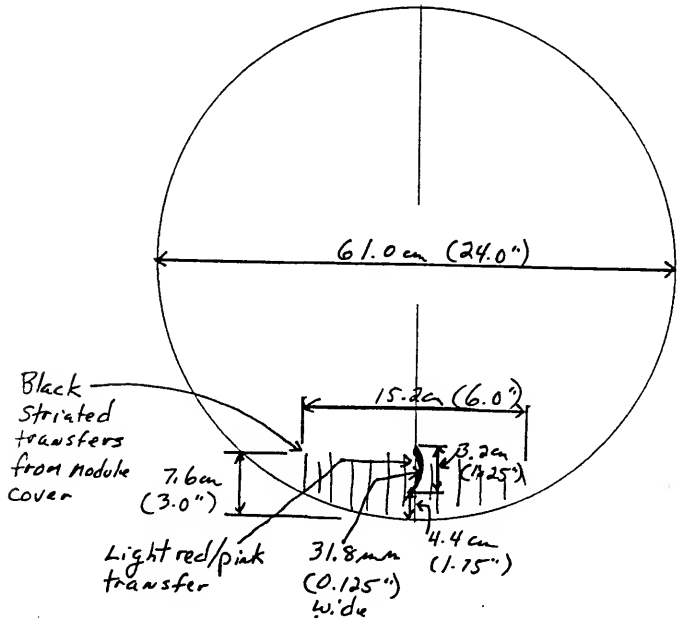
CONDITION OF DEPLOYED BAG 1

(1) Bag Intact
(2) Split or Torn*
(3) Cut by Object In Impact*
(4) Cut after Accident*
(5) Other (e.g., burned)*
(8) N/A (not deployed)
(9) Unknown

*DESCRIBE System and Bag Damage:

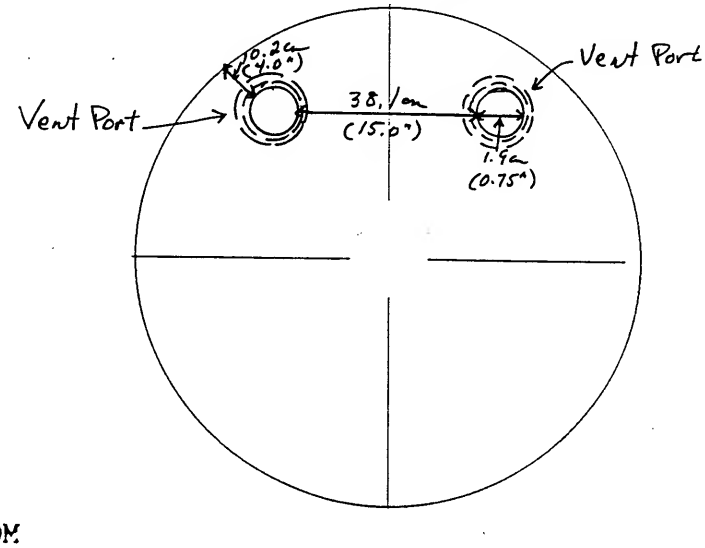
NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

Non-tethered Air Bag

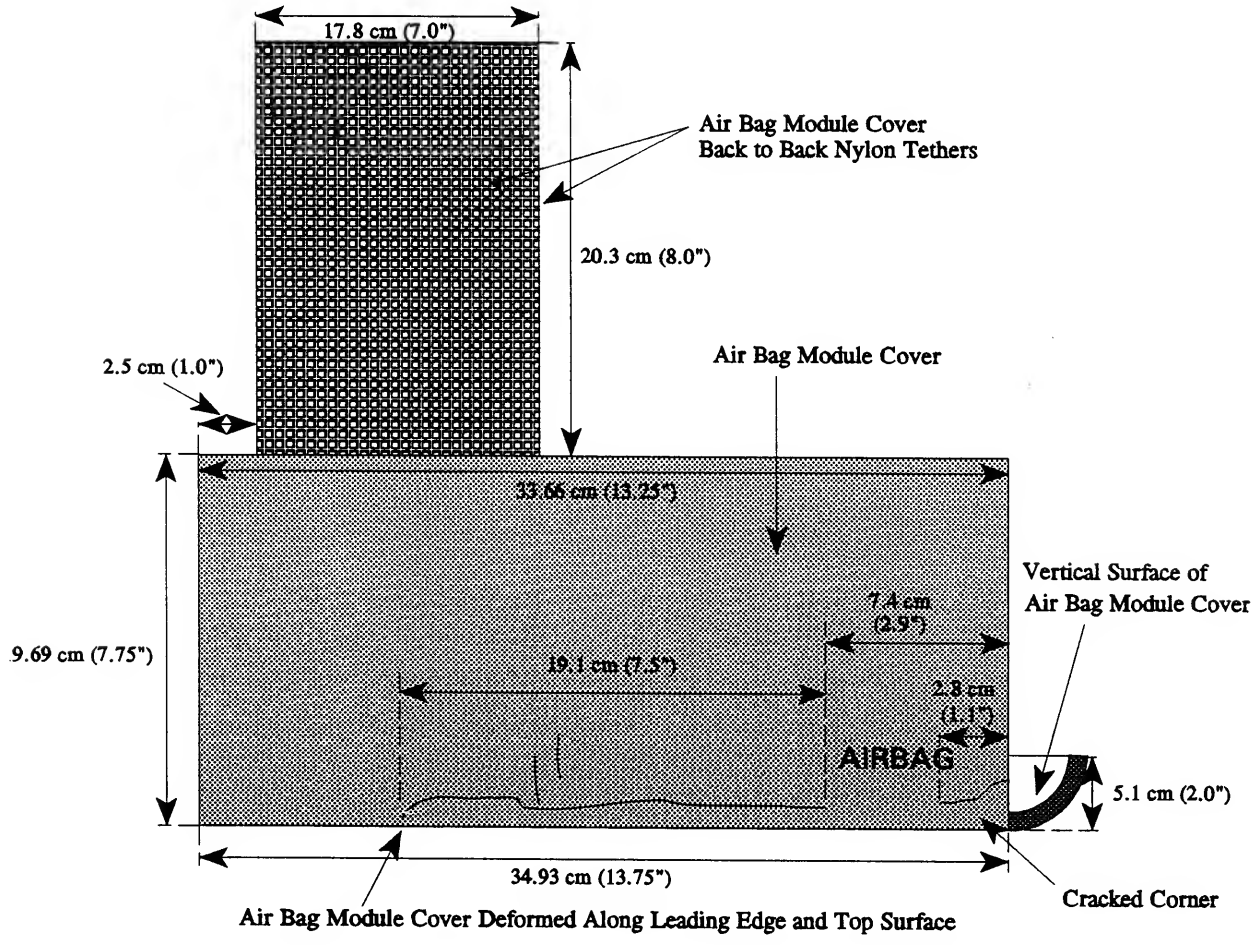


Air Bag Identification / Serial No. [redacted]

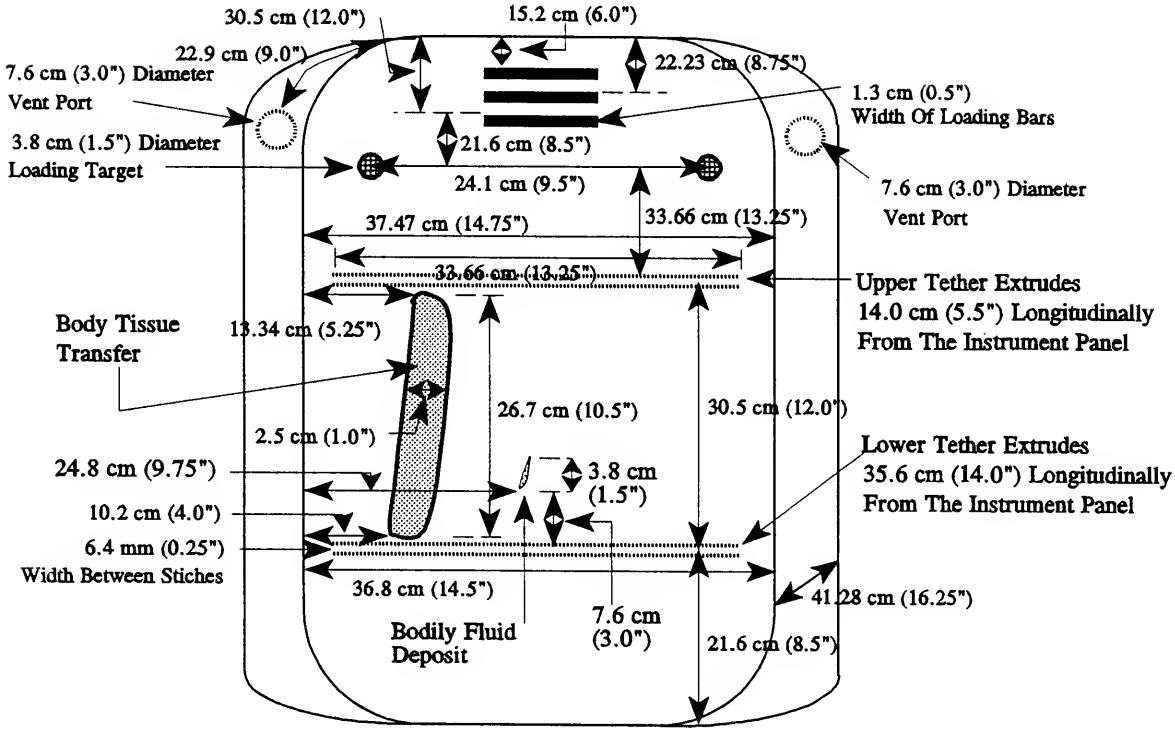
TOP



Passenger Side Air Bag Module Cover



Passenger Side Air Bag



OCCUPANTS of AIRBAG CAR

NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more: 2
NUMBER OF INJURED PERSONS: 2
MAXIMUM AIS IN AIRBAG VEHICLE: 5
(0) No Injury
(1-6) AIS Severity
(7) Injured, Unknown Severity
(9) Unknown

DRIVER AGE 42 SEX F

NUMBER OF DRIVER INJURIES: 2
SOURCE OF BEST INJURY DATA: 7

(0) Not Injured
(1) Autopsy w/wo med. records
(2) Hospital Medical Records
(3) Emergency Room only
(4) Private physician, Clinic
(5) Lay Coroner Report
(6) EMS Personnel
(7) Interviewee
(8) Police
(9) Unknown

MAXIMUM AIS BY BODY REGION

REGION	MAX AIS	CONTACT
Head/Neck/Face	1	Air Bag
Chest	0	— —
Abdomen	0	— —
Leg/Hips	0	— —
Other (Arms)	0	— —
DRIVER MAXIMUM	1	Air Bag

EJECTION: Extent No Ejection

Portal _____

NOTES:

The Supplemental Inflatable Restraint system consisted of a driver side and passenger side air bag system. Both air bags deployed as the result of contact with the parking lot island curb by the undercarriage engine cross frame member. The driver was seated close to the air bag module mounted in the steering wheel hub. As she was applying the brakes she moved forward and was struck by the air bag as it deployed. She sustained contusion of the right face and neck. She was not restrained by the available 3-pt manual restraint belt.

The right front passenger moved forward and struck the passenger side air bag module and air bag as it began its deployment cycle. The passenger was propelled upward and struck the windshield/windshield header with his head and face. He sustained an AIS-5 injury of the spinal cord and an AIS-4 injury of the brain. He expired 16 hrs after the crash.

The EEPROM was read by the Tech 1 and is included in this report. The passenger air bag was manufactured by [redacted] and was folded using an "inverted bubble fold" pattern.

DRIVER-PASSENGER AIRBAG SUPPLEMENT AB-6

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 2

Evidence: The EEPROM of the Supplemental Inflatable Restraint system indicated the 3pt. manual lap belt was not latched at the time of the crash, close proximity of driver to the air bag resulting in facial/neck contusions, scuff marks on knee bolster.

DRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

Driver was looking to left with foot applying pressure to brake pedal and turning left. The seat was adjusted just rearward from full forward position. The driver did not see the curbed parking lot island prior to the impact

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 1

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

The driver was wearing non prescription sunglasses which were knocked off her face during the crash and came to rest in the rear seat. The driver wore red colored nail polish, but no mascara.

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 1

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

The driver was aware of the dual air bag system in the vehicle. Immediately following the crash, the driver cited heavy smoke in the vehicle hampered her view of the right front occupants presence. She thought the vehicle was on fire.

PASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown 1

Describe: The right front passenger contacted the air bag module cover and air bag during the initial deployment phase resulting in fatal injuries.

Appendix D

Time Interval Computation, Impact To Final Rest

Acceleration/G-Force Computation

Assuming constant acceleration, the simple equations for linear motion of a rigid body are:

① $V(t) = at + V_i$,

② $d(t) = \frac{1}{2}at^2 + V_i t$

Where:

a	is the constant acceleration of the rigid body
t	is the time,
V_i	is the initial velocity of the rigid body at time t=0,
V(t)	is the velocity at any given time (t) for the rigid body
d(t)	is the displacement at any given time (t) for the rigid body.

The focus of presenting these equations is to calculate the deceleration time interval from the initial velocity of Vehicle #1 at the point of contact between the curb contact and the leading edge of the engine cross frame member to zero velocity at the final rest position.

Solving for t:

Rewriting equation ① in terms of 'a',

$a = (V-V_i)/t$

Substituting equation ① into equation ②,

$d = \frac{1}{2}[(V-V_i/t)]t_2 + V_i t$
$d = \frac{1}{2}(V-V_i)t + V_i t$

Knowing the vehicle at the end of the event was at a complete stop (i.e., V=0), the previous equation can be written:

$d = \frac{1}{2}V_i t$

Using the computed travel speed of 28.2 km/h (17.5 mph) as the initial velocity (V_i) that was discussed in the text and a displacement value of 6.35 cm (2.5") [which included 5.1 cm (2.0") of the engine cross frame member crush and 1.25 (0.5") rearward movement of the engine cradle], a stopping time interval from the time of curb contact with the engine frame cross member to zero velocity was computed using the following formula:

$t = 2d/ V_i$

Computation	
Metric	English
t = 2(6.35 cm)/28.2 km/h (1 km/1000 m)(3600 sec/hr)(1 m/100 cm) t = 0.0162 sec x 1000 = 16.2 msec	t = 2(2.5")/17.5 mph (1 mile/5280')(3600 sec/hr)(1'/12") t = 0.0162 sec x 1000 = 16.2 msec

To find the average acceleration, the rewrite of equation ① was used as follows:

$$a = (V-V_i)/t$$

Computation	
Metric	English
a = 0-28.2 km/h/0.0162 sec(1000 m/1 km)(1 hr/3600 sec) a = 483.5 m/sec^2 a = 483.5 m/sec^2/9.8 m/sec^2 a = 49.2 g-force	a = 0-17.5 mph/0.0162 sec(5280'/1 mile)(1 hr/3600 sec) a = 1584 ft/sec^2 a = 1584 ft/sec^2/32.2 ft/sec^2 a = 49.2 g-force

Appendix E

DERM, EEPROM Readout

[redacted]

STR STR EEPROM DATA

Write in DATE: [redacted]/95

Write in WTN: 2G1FP32[redacted]

ROM identification: AA

```
8A00:  AA AA 00 00 00 20 00 00
8A08:  7D 00 00 00 00 00 00 00
8A10:  00 00 00 0A 21 FF 1B FF
8A18:  00 00 00 00 00 00 00 02
8A20:  1C 00 00 00 00 00 00 00
8A28:  00 00 00 00 00 00 00 00
8A30:  00 00 00 00 00 00 00 00
8A38:  00 00 00 00 00 00 00 00
8A40:  00 00 00 00 00 00 00 00
8A48:  00 00 00 00 00 00 00 00
8A50:  00 00 00 00 00 00 00 00
8A58:  00 00 00 00 00 00 00 00
8A60:  00 00 00 00 00 00 00 00
8A68:  00 00 00 00 00 00 00 00
8A70:  00 00 00 00 00 00 00 00
8A78:  00 00 00 00 00 00 00 00
8A80:  00 00 00 00 00 00 00 00
8A88:  00 00 00 00 00 00 00 00
8A90:  00 00 00 00 00 00 00 00
8A98:  00 00 00 00 00 00 00 00
8AA0:  00 00 00 00 00 00 00 00
8AA8:  00 00 00 00 00 00 00 00
8AB0:  00 00 00 00 00 00 00 00
8AB8:  00 00 00 00 00 00 00 00
8AC0:  00 00 00 00 00 00 00 00
8AC8:  00 00 00 00 00 00 00 00
8AD0:  00 00 00 00 00 00 00 00
8AD8:  00 00 00 00 00 00 00 00
8AE0:  00 00 00 00 00 10 50 04
8AE8:  00 00 00 01 00 00 00 55
8AF0:  00 00 00 00 00 00 00 00
8AF8:  00 00 00 00 00 00 00 00
8B00:  00 00 00 00 00 00 00 00
8B08:  00 00 00 00 01 01 01 01
8B10:  01 0A F9 F9 F9 F9 F9 F9
8B18:  F9 F9 F9 F9 5F 00 00 00
8B20:  00 00 00 00 00 00 00 00
8B28:  00 00 00 00 00 00 00 00
8B30:  00 00 00 00 00 00 7D 01
8B38:  E6 01 E6 81 02 F8 02 F8
8B40:  52 00 00 00 00 00 00 00
8B48:  00 00 7D 00 00 00 00 7D
8B50:  00 00 00 00 7D 00 00 00
8B58:  00 7D 00 00 00 00 7D 00
8B60:  00 00 00 7D 00 00 00 00
8B68:  7D 00 00 00 00 7D 00 00
8B70:  00 00 7D 00 00 00 00 7D
8B78:  00 00 00 00 7D 00 00 00
8B80:  00 7D 00 00 00 00 7D 00
8B88:  00 00 7D 00 00 00 00 7D
8B90:  00 7D 00 00 00 00 7D 00
8B98:  00 00 7D 00 00 00 00 7D
8BA0:  00 7D 00 00 00 00 7D 00
8BA8:  00 00 00 7D 00 00 00 00
8BB0:  7D 00 00 00 00 7D 00 00
8BB8:  00 00 7D 00 00 00 00 7D
8BC0:  00 00 00 00 7D 00 00 00
8BC8:  00 7D 00 00 00 00 00 00
8BD0:  00 00 43 00 62 54 04 16
8BD8:  33 3F 41 49 34 30 4B 54
8BE0:  04 16 33 3F A5 A5 A5 A5
8BE8:  55 64 02 00 00 00 00 00
8BF0:  00 00 AA 00 00 00 00 00
```

Appendix F

NASS Vehicle Forms

U.S. Department of Transportation
National Highway Traffic Safety Administration

GENERAL VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 95-20
3. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 94
   Code the last two digits of the model year
   (99) Unknown
5. Vehicle Make (specify): 20
   Chevrolet
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (99) Unknown
6. Vehicle Model (specify): 009
   Camaro Z28 Convertible
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (999) Unknown
7. Body Type 01
   Note: Applicable codes may be found on the back of this page.
8. Vehicle Identification Number

   2G1FP32PXR2([redacted])
   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
   Left justify; Slash zeros and letter Z (Ø and ~~Z~~)
   No VIN—Code all zeros Unknown—Code all nines
9. Vehicle Special Use (This Trip) 0
   (0) No special use
   (1) Taxi
   (2) Vehicle used as school bus
   (3) Vehicle used as other bus
   (4) Military
   (5) Police
   (6) Ambulance
   (7) Fire truck or car
   (8) Other (specify): _____
   (9) Unknown

OFFICIAL RECORDS

10. Police Reported Vehicle Disposition 1
    (0) Not towed due to vehicle damage
    (1) Towed due to vehicle damage
    (9) Unknown
11. Police Reported Travel Speed 012
    Code to the nearest kmph (NOTE: 000 means less than 0.5 kmph)
    (160) 159.5 kmph and above
    (999) Unknown 5 to 10 mph
    7.5 mph X 1.6093 = 12.1 kmph
12. Speed Limit 000
    (000) No statutory limit
    Code posted or statutory speed limit in kmph
    (999) Unknown

    ___ mph X 1.6093 = ___ kmph
13. Police Reported Alcohol Presence For Driver 0
    (0) No alcohol present
    (1) Yes alcohol present
    (7) Not reported
    (8) No driver present
    (9) Unknown
14. Alcohol Test Result For Driver 96
    Code actual value (decimal implied before first digit—0.xx)
    (95) Test refused
    (96) None given
    (97) AC test performed, results unknown
    (98) No driver present
    (99) Unknown

    Source: _____
15. Police Reported Other Drug Presence For Driver 0
    (0) No other drug(s) present
    (1) Yes other drug(s) present
    (7) Not reported
    (8) No driver present
    (9) Unknown
16. Other Drug Specimen Test Result For Driver 0
    (0) No specimen test given
    (1) Drug(s) not found in specimen
    (2) Drug(s) found in specimen, (specify):
    _____
    (3) Specimen test given, results unknown or not obtained
    (8) No driver present
    (9) Unknown if specimen test given
17. Driver's Zip Code [redacted]
    (00001) Driver not a resident of U.S. or territories
    _____ Code actual 5-digit zip code
    (99998) No driver present
    (99999) Unknown
18. Driver's Race/Ethnic Origin 1
    (1) White (non-Hispanic)
    (2) Black (non-Hispanic)
    (3) White (Hispanic)
    (4) Black (Hispanic)
    (5) American Indian, Eskimo or Aleut
    (6) Asian or Pacific Islander
    (7) Other (specify):
    _____
    (8) No driver present
    (9) Unknown

CODES FOR BODY TYPE

CDS APPLICABLE VEHICLES

Automobiles

(01) Convertible (excludes sun-roof, t-bar)
(02) 2-door sedan, hardtop, coupe
(03) 3-door/2-door hatchback
(04) 4-door sedan, hardtop
(05) 5-door/4-door hatchback
(06) Station wagon (excluding van and truck based)
(07) Hatchback, number of doors unknown
(08) Other automobile type (specify):

_____

(09) Unknown automobile type

Automobile Derivatives

(10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
(11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
(12) Large limousine - more than four side doors or stretched chassis
(13) Three-wheel automobile or automobile derivative

Utility Vehicles (≤ 4,500 kgs GVWR)

(14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Passport, Samurai, Sidekick, Rocky)
(15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Hummer, Landcruiser, Rover, Scout, Yukon)
(16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
(19) Utility, unknown body type

Van Based Light Trucks (≤ 4,500 kgs GVWR)

(20) Minivan (Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Vista, Aerostar, Windstar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Expo Wagon, Vanagon/Camper.)
(21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
(22) Step van or walk-in van (≤ 4,500 kgs GVWR)
(23) Van based motorhome (≤ 4,500 kgs GVWR)
(24) Van based school bus (≤ 4,500 kgs GVWR)
(25) Van based other bus (≤ 4,500 kgs GVWR)
(28) Other van type (Hi-Cube Van, Kary) (specify):

_____

(29) Unknown van type

Light Conventional Trucks (Pickup style cab, ≤ 4,500 kgs GVWR)

(30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10 , T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
(31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500, T100)
(32) Pickup with slide-in camper
(33) Convertible pickup
(39) Unknown pickup style light conventional truck type

Other Light Trucks (≤ 4,500 kgs GVWR)

(40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
(41) Truck based panel
(42) Light truck based motorhome (chassis mounted)
(45) Other light conventional truck type
(48) Unknown light truck type
(49) Unknown light vehicle type (automobile, utility, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

(50) School bus (designed to carry students, not cross country or transit)
(58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):

_____

(59) Unknown bus type

Medium/Heavy Trucks (> 4,500 kgs GVWR)

(60) Step van (> 4,500 kgs GVWR)
(61) Single unit straight truck (4,500 kgs < GVWR ≤ 8,850 kgs)
(62) Single unit straight truck (8,850 kgs < GVWR ≤ 12,000 kgs)
(63) Single unit straight truck (> 12,000 kgs GVWR)
(64) Single unit straight truck, GVWR unknown
(65) Medium/heavy truck based motorhome
(67) Truck-tractor with no cargo trailer
(68) Truck-tractor pulling one trailer
(69) Truck-tractor pulling two or more trailers
(70) Truck-tractor (unknown if pulling trailer)
(78) Unknown medium/heavy truck type
(79) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

(80) Motorcycle
(81) Moped (motorized bicycle)
(82) Three-wheel motorcycle or moped
(88) Other motored cycle (minibike, motorscooter) (specify):_____
(89) Unknown motored cycle type

Other Vehicles

(90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
(91) Snowmobile
(92) Farm equipment other than trucks
(93) Construction equipment other than trucks
(97) Other vehicle type
(99) Unknown body type

PRECRASH ENVIRONMENTAL DATA

19. Relation To Interchange Or Junction — 0
(0) Non-interchange area and non-junction
(1) Interchange area related

Non-Interchange junctions
(2) Intersection related
(3) Driveway, alley access related
(4) Other junction (specify) _____
(5) Unknown type of junction
(9) Unknown

20. Trafficway Flow — 0
(0) Not physically divided (two way traffic)
(1) Divided trafficway-median strip without positive barrier
(2) Divided trafficway-median strip with positive barrier
(3) One way traffic
(9) Unknown

21. Number Of Travel Lanes — 2
(1) One
(2) Two
(3) Three
(4) Four
(5) Five
(6) Six
(7) Seven or more
(9) Unknown

22. Roadway Alignment — 1
(1) Straight
(2) Curve right
(3) Curve left
(9) Unknown

23. Roadway Profile — 4
(1) Level
(2) Uphill grade (>2%)
(3) Hill crest
(4) Downhill grade (>2%)
(5) Sag
(9) Unknown

24. Roadway Surface Type — 2
(1) Concrete
(2) Bituminous (asphalt)
(3) Brick or block
(4) Slag, gravel, or stone
(5) Dirt
(8) Other (specify): _____
(9) Unknown

25. Roadway Surface Condition — 1
(1) Dry
(2) Wet
(3) Snow or slush
(4) Ice
(5) Sand, dirt, or oil
(8) Other (specify): _____
(9) Unknown

26. Light Conditions — 1
(1) Daylight — Late Afternoon, Early Evening, Sun low in sky
(2) Dark
(3) Dark, but lighted
(4) Dawn
(5) Dusk
(9) Unknown

27. Atmospheric Conditions — 0
(0) No adverse atmospheric-related driving conditions
(1) Rain
(2) Sleet/hail
(3) Snow
(4) Fog
(5) Rain and fog
(6) Sleet and fog
(7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify): _____
(9) Unknown

28. Traffic Control Device — 0
(0) No traffic control(s)
(1) Traffic control signal (not RR crossing)

Regulatory
(2) Stop sign
(3) Yield sign
(4) School zone sign
(5) Other regulatory sign (specify): _____
(6) Warning sign (not RR crossing)
(7) Unknown sign
(8) Miscellaneous/other controls including RR controls (specify): _____
(9) Unknown

29. Traffic Control Device Functioning — 0
(0) No traffic control device
(1) Traffic control device not functioning (specify): _____
(2) Traffic control device functioning properly
(9) Unknown

PRECRASH DRIVER RELATED DATA

30. Driver's Distraction/Inattention To Driving (Prior To Recognition Of Critical Event) 02
(00) No driver present
(01) Attentive or not distracted
(02) Looked but did not see

Distractions
(03) By other occupant(s), (specify): _____
(04) By moving object in vehicle (specify): _____
(05) While talking or listening to cellular phone (specify location and type of phone): _____
(06) While dialing cellular phone (specify location and type of phone): _____
(07) While adjusting climate controls
(08) While adjusting radio, cassette, CD (specify): _____
(09) While using other device/object in vehicle (specify): _____
(10) Sleepy or fell asleep
(11) Distracted by outside person, object, or event (specify): _____
(12) Eating or drinking
(13) Smoking related
(97) Distracted/inattentive, details unknown
(98) Other, distraction (specify): _____
(99) Unknown

31. Pre-Event Movement (Prior to Recognition of Critical Event) 01
(00) No driver present
(01) Going straight
(02) Decelerating in traffic lane
(03) Accelerating in traffic lane
(04) Starting in traffic lane
(05) Stopped in traffic lane
(06) Passing or overtaking another vehicle
(07) Disabled or parked in travel lane
(08) Leaving a parking position
(09) Entering a parking position
(10) Turning right
(11) Turning left
(12) Making a U-turn
(13) Backing up (other than for parking position)
(14) Negotiating a curve
(15) Changing lanes
(16) Merging
(17) Successful avoidance maneuver to a previous critical event
(97) Other (specify): _____
(99) Unknown

32. Critical Precrash Event 98
This Vehicle Loss of Control Due To:
(01) Blow out or flat tire
(02) Stalled engine
(03) Disabling vehicle failure (e.g., wheel fell off) (specify): _____
(04) Non-disabling vehicle problem (e.g., hood flew up) (specify): _____
(05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): _____
(06) Traveling too fast for conditions
(08) Other cause of control loss (specify): _____
(09) Unknown cause of control loss

This Vehicle Traveling
(10) Over the lane line on left side of travel lane
(11) Over the lane line on right side of travel lane
(12) Off the edge of the road on the left side
(13) Off the edge of the road on the right side
(14) End departure
(15) Turning left at intersection
(16) Turning right at intersection
(17) Crossing over (passing through) intersection
(18) This vehicle decelerating
(19) Unknown travel direction

Other Motor Vehicle In Lane
(50) Other vehicle stopped
(51) Traveling in same direction with lower steady speed
(52) Traveling in same direction while decelerating
(53) Traveling in same direction with higher speed
(54) Traveling in opposite direction
(55) In crossover
(56) Backing
(59) Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane
(60) From adjacent lane (same direction)—over left lane line
(61) From adjacent lane (same direction)—over right lane line
(62) From opposite direction—over left lane line
(63) From opposite direction—over right lane line
(64) From parking lane
(65) From crossing street, turning into same direction
(66) From crossing street, across path
(67) From crossing street, turning into opposite direction
(68) From crossing street, intended path not known
(70) From driveway, turning into same direction
(71) From driveway, across path
(72) From driveway, turning into opposite direction
(73) From driveway, intended path not known
(74) From entrance to limited access highway
(78) Encroachment by other vehicle—details unknown

Pedestrian, Pedalcyclist, or Other Nonmotorist
(80) Pedestrian in roadway
(81) Pedestrian approaching roadway
(82) Pedestrian—unknown location
(83) Pedalcyclist or other nonmotorist in roadway (specify): _____
(84) Pedalcyclist or other nonmotorist approaching roadway, (specify): _____
(85) Pedalcyclist or other nonmotorist—unknown location (specify): _____

Object or Animal
(87) Animal in roadway
(88) Animal approaching roadway
(89) Animal—unknown location
(90) Object in roadway
(91) Object approaching roadway
(92) Object—unknown location
(98) Other critical precrash event (specify): Turning left from 2 lane parking lot driveway into an adjacent parking lot.
(99) Unknown

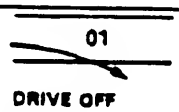
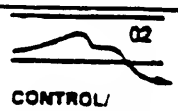
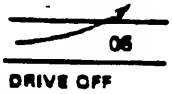
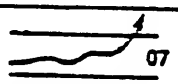
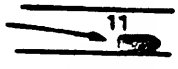
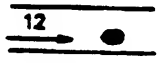
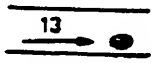
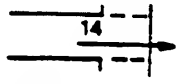
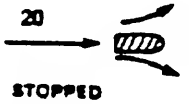
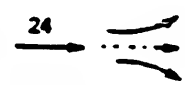
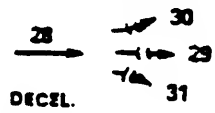
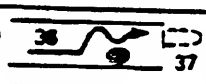
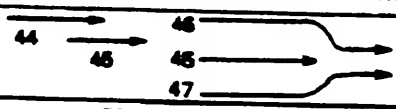
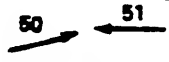
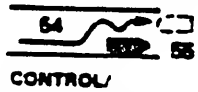
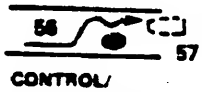
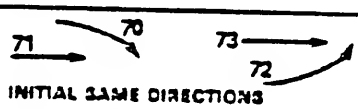
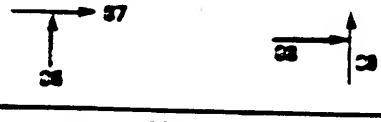
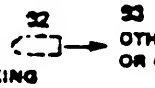
33. Attempted Avoidance Maneuver 0 1
(00) No driver present
(01) No avoidance maneuver
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(98) Other action (specify): _____
(99) Unknown

34. Pre-Impact Stability 1
(0) No driver present
(1) Tracking
(2) Skidding longitudinally—rotation less than 30 degrees
(3) Skidding laterally—clockwise rotation
(4) Skidding laterally—counterclockwise rotation
(7) Other vehicle loss-of-control (specify): _____
(9) Precrash stability unknown

35. Pre-Impact Location 8
(0) No driver present
(1) Stayed in original travel lane
(2) Stayed on roadway but left original travel lane
(3) Stayed on roadway, not known if left original travel lane
(4) Departed roadway
(5) Remained off roadway
(6) Returned to roadway
(7) Entered roadway
(9) Unknown
(8) Other— Parking lot island curb

36. Accident Type 1 3
(Note: Applicable codes on back of this page)
(00) No impact
Code the number of the diagram that best describes the accident circumstance
(98) Other accident type (specify): _____
(99) Unknown

STOP HERE IF GV07 DOES NOT EQUAL 01 - 49

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER	16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 24 SLOWER 25, 26, 27	 28 DECEL. 29, 30, 31		(EACH • 32) SPECIFICS OTHER	(EACH • 33) SPECIFICS UNKNOWN
	E Forward Impact	 34 35 CONTROL/ TRACTION LOSS	 36 37 CONTROL/ TRACTION LOSS	 38 39 AVOID COLLISION WITH VEH.	 40 41 AVOID COLLISION WITH OBJECT	(EACH • 42) SPECIFICS OTHER	(EACH • 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 45 46 47				(EACH • 48) SPECIFICS OTHER	(EACH • 49) SPECIFICS UNKNOWN
III Same Trafficway Opposite Direction	G Head-On	 50 51 LATERAL MOVE	(EACH • 52) SPECIFICS OTHER			(EACH • 53) SPECIFICS UNKNOWN	
	H Forward Impact	 54 55 CONTROL/ TRACTION LOSS	 56 57 CONTROL/ TRACTION LOSS	 58 59 AVOID COLLISION WITH VEH.	 60 61 AVOID COLLISION WITH OBJECT	(EACH • 62) SPECIFICS OTHER	(EACH • 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 65 LATERAL MOVE	(EACH • 66) SPECIFICS OTHER			(EACH • 67) SPECIFICS UNKNOWN	
IV Change Trafficway Vehicle Turning	J Turn Across Path	 68 69 INITIAL OPPOSITE DIRECTIONS	 70 71 72 73 INITIAL SAME DIRECTIONS			(EACH • 74) SPECIFICS OTHER	(EACH • 75) SPECIFICS UNKNOWN
	K Turn Into Path	 76 77 78 79 TURN INTO SAME DIRECTION	 80 81 82 83 TURN INTO OPPOSITE DIRECTIONS			(EACH • 84) SPECIFICS OTHER	(EACH • 85) SPECIFICS UNKNOWN
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 87 88 89				(EACH • 90) SPECIFICS OTHER	(EACH • 91) SPECIFICS UNKNOWN
VI Miscellaneous	M Backing Etc	 92 93 OTHER VEH. OR OBJECT BACKING VEH.				98 Other Accident Type 99 Unknown Accident Type 00 No Impact	

OCCUPANT RELATED

37. Driver Presence in Vehicle — 1
(0) Driver not present
(1) Driver present
(9) Unknown

38. Number of Occupants This Vehicle — 02
(00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

39. Number of Occupant Forms Submitted — 02

AIR BAG RELATED

40. Is this an AOPS Vehicle? — 1
(0) No (includes unknown)
(1) Yes - researcher determined
(2) VIN determined air bag system
(3) VIN determined automatic (passive) belts
(4) VIN determined air bag and automatic (passive) belts

41. Air Bag(s) Deployment, First Seat Frontal — 6
(0) Not equipped or not available
(1) No air bags deployed

Single Air Bag Vehicle
(2) Driver air bag deployed
(3) Driver air bag, unknown if deployed

Multiple Air Bag Vehicle
(4) Driver side only deployed
(5) Passenger side only deployed
(6) Driver and passenger side deployed
(7) Driver and passenger side unknown if deployed
(8) Air bag(s) deployed, details unknown
(9) Unknown

42. Air Bag(s) Deployment, Other Than First Seat Frontal — 0
(0) Not equipped with an "other" air bag
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

Specify type of "other" air bag present: _____

VEHICLE WEIGHT ITEMS

43. Vehicle Curb Weight — 1,590
____ Code weight to nearest 10 kilograms.
(045) Less than 450 kilograms
(610) 6,100 kilograms or more
(999) Unknown
3,500 lbs X .4536 = 1,588 kgs

Source: _____

44. Vehicle Cargo Weight — 0,000
____ Code weight to nearest 10 kilograms.
(000) Less than 5 kilograms
(450) 4,500 kilograms or more
(999) Unknown
____,____ lbs X .4536 = ____,____ kgs

Source: _____

ROLLOVER DATA

45. Rollover — 00
(00) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)
(01-16) Code the number of quarter turns
(17) Rollover, 17 or more quarter turns (specify): _____
(98) Rollover--end-over-end (i.e., primarily about the lateral axis)
(99) Rollover (overturn), details unknown

46. Rollover Initiation Type — 00
(00) No rollover
(01) Trip-over
(02) Flip-over
(03) Turn-over
(04) Climb-over
(05) Fall-over
(06) Bounce-over
(07) Collision with another vehicle
(08) Other rollover initiation type specify): _____
(98) Rollover--end-over-end
(99) Unknown rollover initiation type

47. Location of Rollover Initiation — 0
(0) No rollover
(1) On roadway
(2) On shoulder—paved
(3) On shoulder—unpaved
(4) On roadside or divided trafficway median
(8) Rollover--end-over-end
(9) Unknown

48. Rollover Initiation Object Contacted — 00
(Note: Applicable codes on back of page)

49. Location on Vehicle Where Initial Principal Tripping Force Is Applied — 0
(0) No rollover
(1) Wheels/tires
(2) Side plane
(3) End plane
(4) Undercarriage
(5) Other location on vehicle (specify): _____
(6) Non-contact rollover forces (specify): _____
(8) Rollover--end-over-end
(9) Unknown

50. Direction of Initial Roll — 0
(0) No rollover
(1) Roll right - primarily about the longitudinal axis
(2) Roll left - primarily about the longitudinal axis
(8) Rollover--end-over-end
(9) Unknown roll direction

CODES FOR ROLLOVER INITIATION OBJECT CONTACTED

(00) No rollover
(01-30) — Vehicle Number

Noncollision
(31) Turn-over — fall-over
(32) No rollover impact initiation (end-over-end)
(34) Jackknife

Collision With Fixed Object
(41) Tree (≤ 10 cm in diameter)
(42) Tree (> 10 cm in diameter)
(43) Shrubbery or bush
(44) Embankment

(45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post
(50) Pole or post (≤ 10 cm in diameter)
(51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
(52) Pole or post (> 30 cm in diameter)
(53) Pole or post (diameter unknown)

(54) Concrete traffic barrier
(55) Impact attenuator
(56) Other traffic barrier (includes guardrail) (specify):_____

(57) Fence
(58) Wall
(59) Building
(60) Ditch or culvert
(61) Ground
(62) Fire hydrant
(63) Curb
(64) Bridge
(68) Other fixed object (specify):

(69) Unknown fixed object

Collision with Nonfixed Object
(70) Passenger car, light truck, van, or other vehicle not in-transport
(71) Medium/heavy truck or bus not in-transport
(76) Animal
(77) Train
(78) Trailer, disconnected in transport
(79) Object fell from vehicle in-transport
(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

(99) Unknown event or object

OVERRIDE/UNDERRIDE (THIS VEHICLE)

51. Front Override/Underride (this Vehicle) 0

52. Rear Override/Underride (this Vehicle) 0

(0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride

Override (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify): _____

Underride (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify): _____

(7) Medium/heavy truck or bus override (of any configuration)
(9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value
(997) Noncollision
(998) Impact with object
(999) Unknown

53. Heading Angle For This Vehicle 998

54. Heading Angle For Other Vehicle 998

RECONSTRUCTION DATA

55. Towed Trailing Unit 0
(0) No towed unit
(1) Yes—towed trailing unit
(9) Unknown

56. Documentation of Trajectory Data for This Vehicle 1
(0) No
(1) Yes

57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
(0) Not collision (for highest delta V) with tree or pole
(1) Not damaged
(2) Cracked/sheared
(3) Tilted <45 degrees
(4) Tilted ≥45 degrees
(5) Uprooted tree
(6) Separated pole from base
(7) Pole replaced
(8) Other (specify): _____
(9) Unknown

ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V

58. Basis for Total (Resultant) Delta V (highest) 11

(00) No vehicle inspection

Delta V Calculated
(01) Reconstruction program -damage only routine
(02) Reconstruction program -damage and trajectory routine
(03) Missing vehicle algorithm

Delta V Not Calculated
(04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

All vehicles within scope (CDC applicable) of reconstuction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.

(05) Rollover
(06) Other non-horizontal forces
(07) Sideswipe type damage
(08) Severe override
(09) Yielding object
(10) Overlapping damage
(11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify): Undercarriage damage, crush data outside scope of reconstruction program
(98) Other, (specify): _____

COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V 9 9 9

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160)159.5 kmph and above
(999)Unknown

60. Longitudinal Component of Delta V (Highest) + − 9 9 9

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: __000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(__999) Unknown

61. Lateral Component of Delta V (Highest) + − 9 9 9

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: __000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(_999) Unknown

62. Energy Absorption 9 9 9 9 0 0

_____ Nearest 100 joules (highest)

_____ Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)
(9997) 999,650 joules or more
(9999) Unknown

63. Impact Speed (Highest) 0 2 8

28.2 (17.5 mph) Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(998) Trajectory algorithm not run
(999) Unknown

DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V) 0
(0) No reconstruction
(1) Collision fits model — results appear reasonable
(2) Collision fits model — results appear high
(3) Collision fits model — results appear low
(4) Borderline reconstruction — results appear reasonable

OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed (Highest) 9 9 9

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(999) Unknown

IS MISSING VEHICLE ALGORITHM APPLICABLE FOR THIS VEHICLE? [ ] YES [ ] NO

IF YES: IS A COMPLETED PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

ESTIMATED DELTA V

66. Estimated Highest Delta V (Researcher Determined) 2
    (0) Reconstruction Delta V coded

    Estimated Delta V
    (1) Less than 10 kmph
    (2) ≥ 10 kmph but < 25 kmph
    (3) ≥ 25 kmph but < 40 kmph
    (4) ≥ 40 kmph but < 55 kmph
    (5) ≥ 55 kmph

    Other estimates of damage severity
    (6) Minor
    (7) Moderate
    (8) Severe

    (9) Unknown

VEHICLE INSPECTION

67. Type of Vehicle Inspection 3
    (0) No inspection
    (1) Vehicle fully repaired-no damage evident
    (2) Partial inspection (specify):
    _____
    (3) Complete inspection

***** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67=0), *****

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

***** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE *****

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,

OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

U.S. Department of Transportation
National Highway Traffic Safety Administration

EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: ——
2. Case Number - Stratum: 95-20
3. Vehicle Number: 01

VEHICLE IDENTIFICATION

VIN 2G1FP32PXR2[redacted] Manufactured [redacted]94 Model Year 94

Vehicle Make (specify): Chevrolet

Vehicle Model (specify): Camaro Z28 Convertible

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L	Location of Max Crush
1	Undercarriage - Lower air deflector panel, Anti-sway bar, engine x-frame member, Rack & Pinion	Not Applicable, damage deformation concentrated at undercarriage components	10.2 cm (4.0") (L) of ℄ on leading edge of Skid plate of engine cross frame member

CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

Specific Impact Number	Plane of Impact C-Measurements	Direct Damage Width (CDC)	Direct Damage Max Crush	Field L	C_1	C_2	C_3	C_4	C_5	C_6	±D
1	Undercarriage - air deflector panel	120.0 cm (47.25")	6.4 cm (2.5")	—	Not Applicable						0
				Refer to "Undercarriage Components, Longitudinal & Vertical Measurements" on Page 2 (Vehicle Damage Sketch)							

HS Form 435A (Rev. 1/95)

ORIGINAL SPECIFICATIONS WORK SHEET

Wheelbase	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Overall Length	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Maximum Width	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Curb Weight	___ ___,___ ___ ___	pounds	x	.4536	=	___,___ ___ ___ kg
Average Track	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Front Overhang	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Rear Overhang	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Undeformed End Width	___ ___ ___.___	inches	x	2.54	=	___ ___ ___cm
Engine Size: cyl./displ.	___ ___ ___ ___	cc	x	.001	=	___.___ L
	___ ___ ___	CID	x	.0164	=	___.___ L

VEHICLE DAMAGE SKETCH

TIRE—WHEEL DAMAGE

a. Rotation physically restricted

RF 2
LF 2
RR 2
LR 2

b. Tire deflated

RF 2
LF 2
RR 2
LR 2

(1) Yes (2) No (8) NA (9) Unk.

TYPE OF TRANSMISSION

☑ Manual ☐ Automatic

6 speed

END SHIFT ≥ 10 CM

☐ Yes ☑ No

ORIGINAL SPECIFICATIONS

Wheelbase	(101.1) 256.8	cm
Overall Length	(193.2) 490.7	cm
Maximum Width	(74.1) 188.2	cm
Curb Weight	(3,500 lb) 1,588	kg
Average Track	(60.65") 154.05	cm
Front Overhang	(45.6") 115.8	cm
Rear Overhang	(46.5") 118.1	cm
Undeformed End Width	———	cm
Engine Size: cyl./displ.	V8- 5.7	L

WHEEL STEER ANGLES

(For locked front wheels or displaced rear axles only)

RF ± NA °
LF ± ___ °
RR ± ___ °
LR ± ___ °

Within ± 5 degrees

DRIVE WHEELS

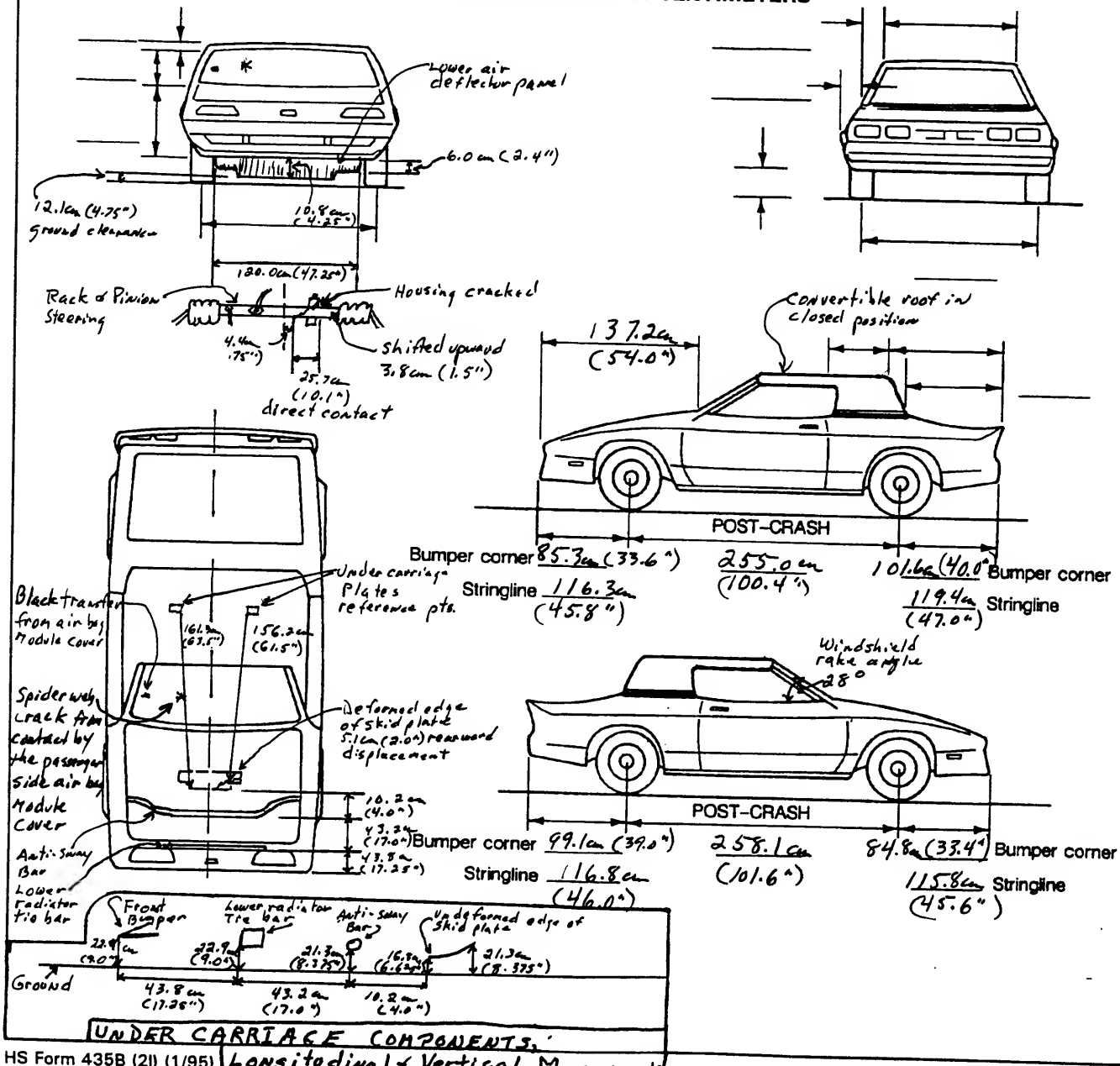
☐ FWD ☑ RWD ☐ 4WD

Approximate Cargo Weight

None kg

Boat panels

MEASUREMENTS IN CENTIMETERS



UNDER CARRIAGE COMPONENTS: Longitodinal & Vertical Measurements

CDC WORKSHEET

CODES FOR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision
- (31) Overturn — rollover (excludes end-over-end)
- (32) Rollover—end-over-end
- (33) Fire or explosion
- (34) Jackknife
- (35) Other intraunit damage (specify): _____
- (36) Noncollision injury
- (38) Other noncollision (specify): _____
- (39) Noncollision — details unknown

Collision With Fixed Object
- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment
- (45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post
- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)
- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail) (specify): _____
- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify): _____
- (69) Unknown fixed object

Collision with Nonfixed Object
- (70) Passenger car, light truck, van, or other vehicle not in-transport
- (71) Medium/heavy truck or bus not in-transport
- (72) Pedestrian
- (73) Cyclist or cycle
- (74) Other nonmotorist or conveyance
- (75) Vehicle occupant
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (79) Object fell from vehicle in-transport
- (88) Other nonfixed object (specify): _____
- (89) Unknown nonfixed object
- (98) Other event (specify): _____
- (99) Unknown event or object

DEFORMATION CLASSIFICATION BY EVENT NUMBER

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force (degrees)	Incremental Value of Shift	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
01	63	360	00	F	D	L	W	02

COLLISION DEFORMATION CLASSIFICATION

HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. 01	5. 63	6. 12	7. F	8. D	9. L	10. W	11. 02

Second Highest Delta "V"

12.	13.	14.	15.	16.	17.	18.	19.

CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

HIGHEST DELTA "V"

20. L	21. C_1	C_2	C_3	C_4	C_5	C_6	22. ±D
Not Applicable							+ −

Second Highest Delta "V"

23. L	24. C_1	C_2	C_3	C_4	C_5	C_6	25. ±D
							+ −

26. Undeformed End Width (Coded when highest severity impact is an end plane impact.) 998
____ Code to the nearest centimeter
(250) 250 centimeters or more
(998) No highest severity end plane impact
(999) Unknown

27. Direct Damage Width (For highest severity impact) 120
____ Code to the nearest centimeter
(250) 250 centimeters or more
(999) Unknown

28. Original Wheelbase 257
____ Code to the nearest centimeter
(650) 650 centimeters or more
(999) Unknown
___.__ inches X 2.54 = ____ centimeters

29. Original Average Track Width 154
____ Code to the nearest centimter
(185) 185 centimeters or more
(999) Unknown
___.__ inches X 2.54 = ____ centimeters

30. Are CDCs Documented but Not Coded on The Automated File? 0
(0) No
(1) Yes

31. Researcher's Assessment of Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

32. Is This A Multi-Stage Manufactured Vehicle And/Or A Certified Altered Vehicle? 0
(0) No post manufacturer modifications
(1) Yes - post manufacturer modifications (specify): _____
_____
_____
(Include photograph of CERTIFICATION PLACARD in case report)
(9) Unknown if vehicle is modified

FIRE OCCURRENCE

33. Fire Occurrence 0
(0) No fire

Yes, fire occurred
(1) Minor
(2) Major
(9) Unknown

34. Origin of Fire 0
(0) No fire
(1) Vehicle exterior (front, side, back, top)
(2) Exhaust system
(3) Fuel tank (and other fuel retention system parts)
(4) Engine compartment
(5) Cargo/trunk compartment
(6) Instrument panel
(7) Passenger compartment area
(8) Other location (specify):
_____
(9) Unknown

FUEL SYSTEM

35. Location of Fuel Tank-1 Filler Cap 2

36. Location of Fuel Tank-2 Filler Cap 0
(0) No fuel tank
(1) On back plane
(2) Aft of center of the rear wheels (rear axle) on left side plane
(3) Aft of center of the rear wheels (rear axle) on right side plane
(4) Forward of center of the rear wheels (rear axle) on left side plane
(5) Forward of center of the rear wheels (rear axle) on right side plane
(6) Over the center of the rear wheels (rear axle) on left side plane
(7) Over the center of the rear wheels (rear axle) on right side plane
(8) Other (specify): _____
(9) Unknown

37. Type of Fuel Tank-1 ____

38. Type of Fuel Tank-2 ____
(0) No fuel tank (electrical vehicle)
(1) Metallic
(2) Non-metallic
(9) Unknown

39. Location of Fuel Tank-1 1

40. Location of Fuel Tank-2 0
(0) No fuel tank
(1) Aft of center of the rear wheels (rear axle) centered
(2) Aft of center of the rear wheels (rear axle) left side
(3) Aft of center of the rear wheels (rear axle) right side
(4) Forward of center of the rear wheels (rear axle) centered
(5) Forward of center of the rear wheels (rear axle) left side
(6) Forward of center of the rear wheels (rear axle) right side
(7) Over center of the rear wheels (rear axle)
(8) Other (specify): _____
(9) Unknown

41. Damage to Fuel Tank-1 1

42. Damage to Fuel Tank-2 0
(0) No fuel tank
(1) No damage to fuel tank
(2) Deformed, no seam failure
(3) Deformed, with a seam failure
(4) Punctured
(5) Lacerated (ripped)
(6) Abraded (scraped)
(7) Filler neck separation from the fuel tank
(8) Other damage (specify): _____
(9) Unknown

43. Leakage Location of Fuel System-1 1

44. Leakage Location of Fuel System-2 0
(0) No fuel tank
(1) No fuel leakage

Primary Area Of Leakage
(2) Tank
(3) Filler neck
(4) Cap
(5) Lines/pump/filter
(6) Vent/emission recovery
(8) Other (specify):_____
(9) Unknown

45. Fuel Type-1 0 1

46. Fuel Type-2 0 0

Single Fuel Type
(00) No fuel tank
(01) Gasoline
(02) Diesel
(03) CNG (Compressed Natural Gas)
(04) LPG (Liquid Petroleum Gas) also known as Propane
(05) LNG (Liquid Natural Gas)
(06) Methanol (M100 or M85)
(07) Ethanol (E100 or E85)
(08) Other (Hydrogen or others) (specify):
_____

Electric Powered or Electric/Solar Powered Vehicles
(10) Lead Acid Battery
(11) Nickel-Iron Battery
(12) Nickel-Cadmium Battery
(13) Sodium Metal Chloride Battery
(14) Sodium Sulfur Battery
(18) Other (Specify):_____

(98) Other Hybrid (specify):
_____

(99) Unknown fuel type

47. Is This Vehicle Equipped With More Than Two Fuel Tanks? 0
(0) No (one or two tanks only)

Yes - More Than Two Tanks
(1) Yes -- no damage to any tank or filler cap and no fuel system leakage
(2) Yes -- no damage to any tank or filler cap but there is fuel system leakage (specify leakage location):
_____
(3) Yes -- damage to an additional tank or filler cap and there is fuel system leakage (specify the following):
Type of tank _____
Tank location _____
Filler cap location _____
Tank damage _____
Location of leakage _____
Type of fuel _____
(9) Unknown if more than two tanks

COMMENTS

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED ***

(GV10=0)

DO NOT COMPLETE THE INTERIOR VEHICLE FORM.

U.S. Department of Transportation
National Highway Traffic Safety Administration

INTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 95-20
3. Vehicle Number 01

INTEGRITY

4. Passenger Compartment Integrity 00
(00) No integrity loss

Yes, Integrity Was Lost Through
(01) Windshield
(02) Door (side)
(03) Door/hatch (back door)
(04) Roof
(05) Roof glass
(06) Side window
(07) Rear window (backlight)
(08) Roof and roof glass
(09) Windshield and door (side)
(10) Windshield and roof
(11) Side and rear window (side window and backlight)
(12) Windshield and side window
(13) Door and side window
(98) Other combination of above (specify): _____
(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 0 6. RF 0 7. LR 0 8. RR 0 9. TG/H 0

(0) No door/gate/hatch
(1) Door/gate/hatch remained closed and operational
(2) Door/gate/hatch came open during collision
(3) Door/gate/hatch jammed shut
(8) Other (specify): _____
(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code Ø

10. LF / 11. RF / 12. LR 0 13. RR 0 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision
(1) Door operational (no damage)
(2) Latch/striker failure due to damage
(3) Hinge failure due to damage
(4) Door structure failure due to damage
(5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
(6) Latch/striker and hinge failure due to damage
(8) Other failure (specify): _____
(9) Unknown

GLAZING

Type of Window/Windshield Glazing

15. WS / 16. LF 2 17. RF 2 18. LR 0 19. RR 0
20. BL 2 21. Roof 0 22. Other 0

(0) No glazing
(1) AS-1 — Laminated
(2) AS-2 — Tempered
(3) AS-3 — Tempered-tinted (original)
(4) AS-2 — Tempered-with after market tint
(5) AS-3 — Tempered-tinted (with additional after market tint)
(6) AS-14 — Glass/Plastic
(7) Glazing removed prior to accident
(8) Other (specify): _____
(9) Unknown

Window Precrash Glazing Status

23. WS / 24. LF 2 25. RF 2 26. LR 0 27. RR 0
28. BL / 29. Roof 0 30. Other 0

(0) No glazing
(1) Fixed
(2) Closed
(3) Partially opened
(4) Fully opened
(7) Glazing removed prior to accident
(9) Unknown

Glazing Damage from Impact Forces

31. WS 2 32. LF / 33. RF / 34. LR 0 35. RR 0
36. BL / 37. Roof 0 38. Other 0

(0) No glazing
(1) No glazing damage from impact forces
(2) Glazing in place and cracked from impact forces
(3) Glazing in place and holed from impact forces
(4) Glazing out-of-place (cracked or not) and not holed from impact forces
(5) Glazing out-of-place and holed from impact forces
(6) Glazing disintegrated from impact forces
(7) Glazing removed prior to accident
(9) Unknown if damaged

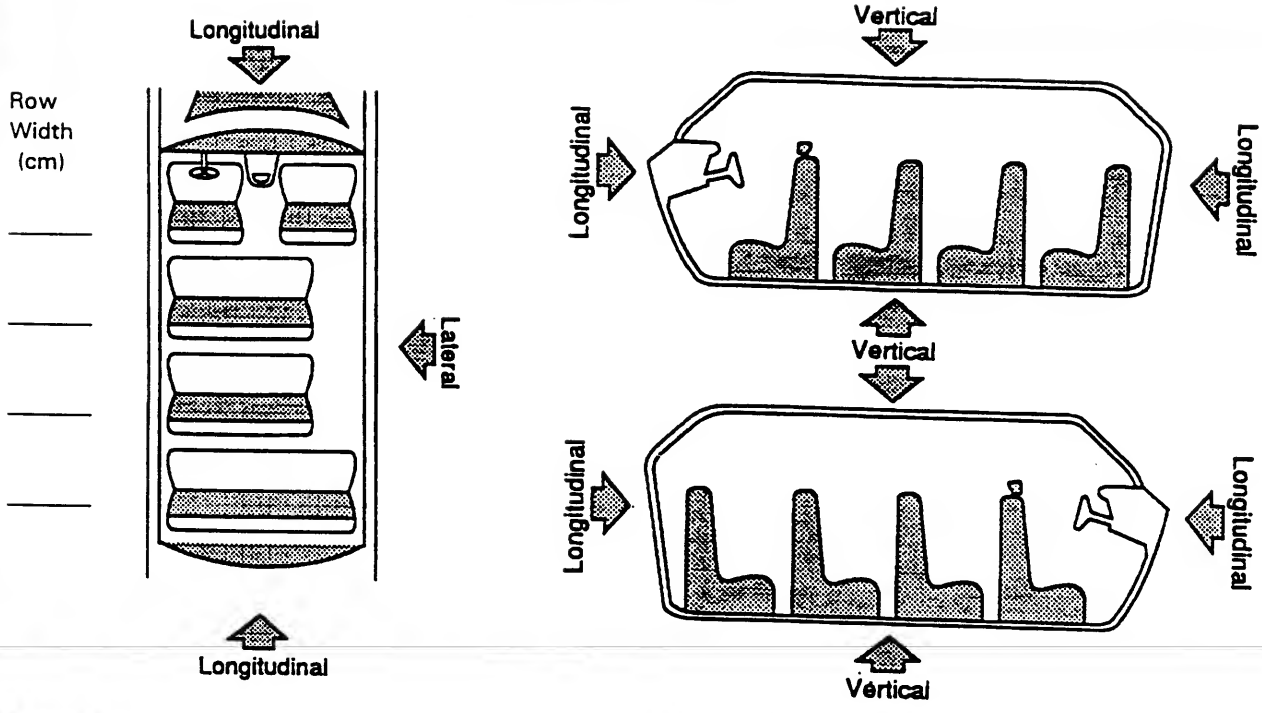
Glazing Damage from Occupant Contact

39. WS 2 40. LF / 41. RF / 42. LR 0 43. RR 0
44. BL / 45. Roof 0 46. Other 0

(0) No glazing
(1) No occupant contact to glazing
(2) Glazing contacted by occupant but no glazing damage
(3) Glazing in place and cracked by occupant contact
(4) Glazing in place and holed by occupant contact
(5) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
(6) Glazing out-of-place by occupant contact and holed by occupant contact
(7) Glazing removed prior to accident
(8) Glazing disintegrated by occupant contact
(9) Unknown if contacted by occupant

INTRUSION WORKSHEET

Note: Sketch intruded areas



(All Measurements Are In Centimeters)

LOCATION OF INTRUSION	INTRUDED COMPONENT	COMPARISON VALUE	—	INTRUDED VALUE	=	INTRUSION	DOMINANT CRUSH DIRECTION
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
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			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		

Document no more than the 15 most severe intrusions

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47. NO Intrusion	48.	49.	50.
2nd	51.	52.	53.	54.
3rd	55.	56.	57.	58.
4th	59.	60.	61.	62.
5th	63.	64.	65.	66.
6th	67.	68.	69.	70.
7th	71.	72.	73.	74.
8th	75.	76.	77.	78.
9th	79.	80.	81.	82.
10th	83.	84.	85.	86.

LOCATION OF INTRUSION

Front Seat
- (11) Left
- (12) Middle
- (13) Right

Second Seat
- (21) Left
- (22) Middle
- (23) Right

Third Seat
- (31) Left
- (32) Middle
- (33) Right

Fourth Seat
- (41) Left
- (42) Middle
- (43) Right

- (97) Catastrophic
- (98) Other enclosed area (specify) _____
- (99) Unknown

INTRUDING COMPONENT

Interior Components
- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Side panel - forward of the A1/A2-pillar
- (11) Door panel (side)
- (12) Side panel - rear of the B-pillar
- (13) Roof (or convertible top)
- (14) Roof side rail
- (15) Windshield
- (16) Windshield header
- (17) Window frame
- (18) Floor pan (includes sill)
- (19) Backlight header
- (20) Front seat back
- (21) Second seat back
- (22) Third seat back
- (23) Fourth seat back
- (24) Fifth seat back
- (25) Seat cushion
- (26) Back door/panel (e.g., tailgate)
- (27) Other interior component (specify): _____

Exterior Components
- (30) Hood
- (31) Outside surface of this vehicle (specify): _____
- (32) Other exterior object in the environment (specify): _____
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): _____
- (99) Unknown

MAGNITUDE OF INTRUSION

- (1) ≥ 3 centimeters but < 8 centimeters
- (2) ≥ 8 centimeters but < 15 centimeters
- (3) ≥ 15 centimeters but < 30 centimeters
- (4) ≥ 30 centimeters but < 46 centimeters
- (5) ≥ 46 centimeters but < 61 centimeters
- (6) ≥ 61 centimeters
- (7) Catastrophic
- (9) Unknown

DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

STEERING RIM/SPOKE DEFORMATION

(All Measurements Are in Centimeters)

COMPARISON VALUE	—	DAMAGE VALUE	=	DEFORMATION
	—		=	
	—		=	
	—		=	
	—		=	

STEERING COLUMN

87. Steering Column Type — 2
(1) Fixed column
(2) Tilt column
(3) Telescoping column
(4) Tilt and telescoping column
(8) Other column type (specify): _____
(9) Unknown

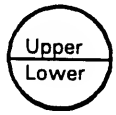
88. Tilt Steering Column Adjustment — 3
(0) No tilt steering column
(1) Full up
(2) Between full up and center
(3) Center
(4) Between center and full down
(5) Full down
(9) Unknown

89. Telescoping Steering Column Adjustment — 0
(0) No telescoping steering column
(1) Full back
(2) Between full back and midpoint
(3) Midpoint
(4) Between midpoint and full forward
(5) Full forward
(9) Unknown

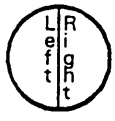
90. Steering Rim/Spoke Deformation — 00
_____Code actual measured deformation to the nearest centimeter
(00) No steering rim deformation
(01-14) Actual measured value in centimeters
(15) 15 centimeters or more
(98) Observed deformation cannot be measured
(99) Unknown

91. Location of Steering Rim/Spoke Deformation — 00
(00) No steering rim deformation

Quarter Sections
(01) Section A
(02) Section B
(03) Section C
(04) Section D



Half Sections
(05) Upper half of rim/spoke
(06) Lower half of rim/spoke
(07) Left half of rim/spoke
(08) Right half of rim/spoke



(09) Complete steering wheel collapse
(10) Undetermined location
(99) Unknown

INSTRUMENT PANEL

92. Odometer Reading — 027,000
_____ kilometers
Code to the nearest 1,000 kilometers
(000) No odometer
(001) Less than 1,500 kilometers
(500) 499,500 kilometers or more
(999) Unknown
16,785 miles X 1.6093 = 27,012 kilometers

Source: _____

93. Instrument Panel Damage from Occupant Contact? — 0
(0) No
(1) Yes
(9) Unknown

94. Type of Knee Bolster Covering — 1
(0) No knee bolster
(1) Padded
(2) Rigid plastic
(8) Other (specify): _____
(9) Unknown

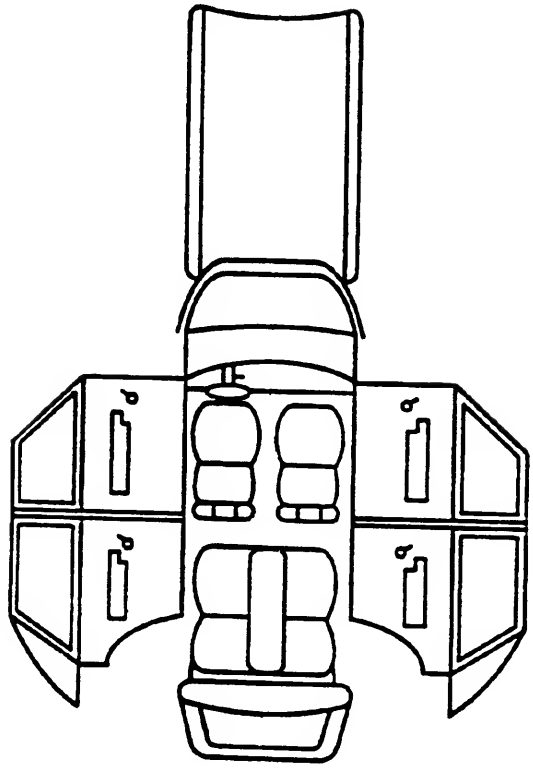
95. Knee Bolsters Deformed from Occupant Contact? — 1
(0) No knee bolster
(1) No deformation
(2) Yes - deformation
(9) Unknown

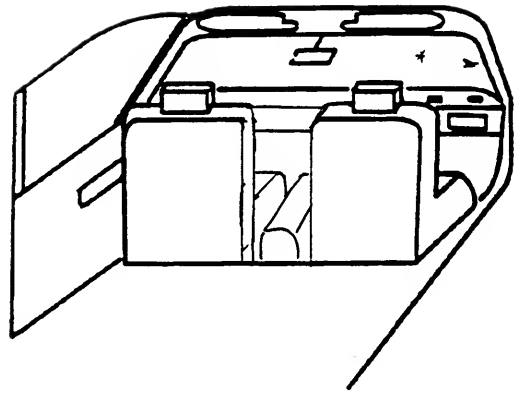
96. Did Glove Compartment Door Open During Collision(s)? — 1
(0) No glove compartment door
(1) No - door did not open
(2) Yes - door opened
(9) Unknown

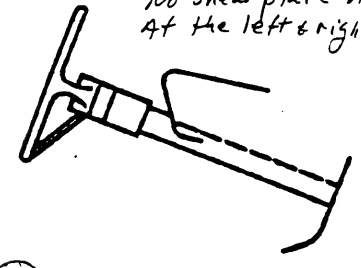
97. Adaptive (Assistive) Driving Equipment — 0
(0) No adaptive driving equipment
(1) Adaptive driving equipment installed
(Check all that apply.)
[ ] Hand controls for braking/acceleration
[ ] Steering control devices (attached to OEM steering wheel
[ ] Steering knob attached to steering wheel
[ ] Low effort power steering (unit or device)
[ ] Replacement steering wheel (i.e., reduced diameter)
[ ] Joy-stick steering controls
[ ] Wheelchair tie-downs
[ ] Modification to seat belts (specify): _____
[ ] Additional or relocated switches (specify): _____
[ ] Raised roof
[ ] Wall-mounted head rest (used behind wheelchair)
[ ] Other adaptive device (specify): _____
(9) Unknown

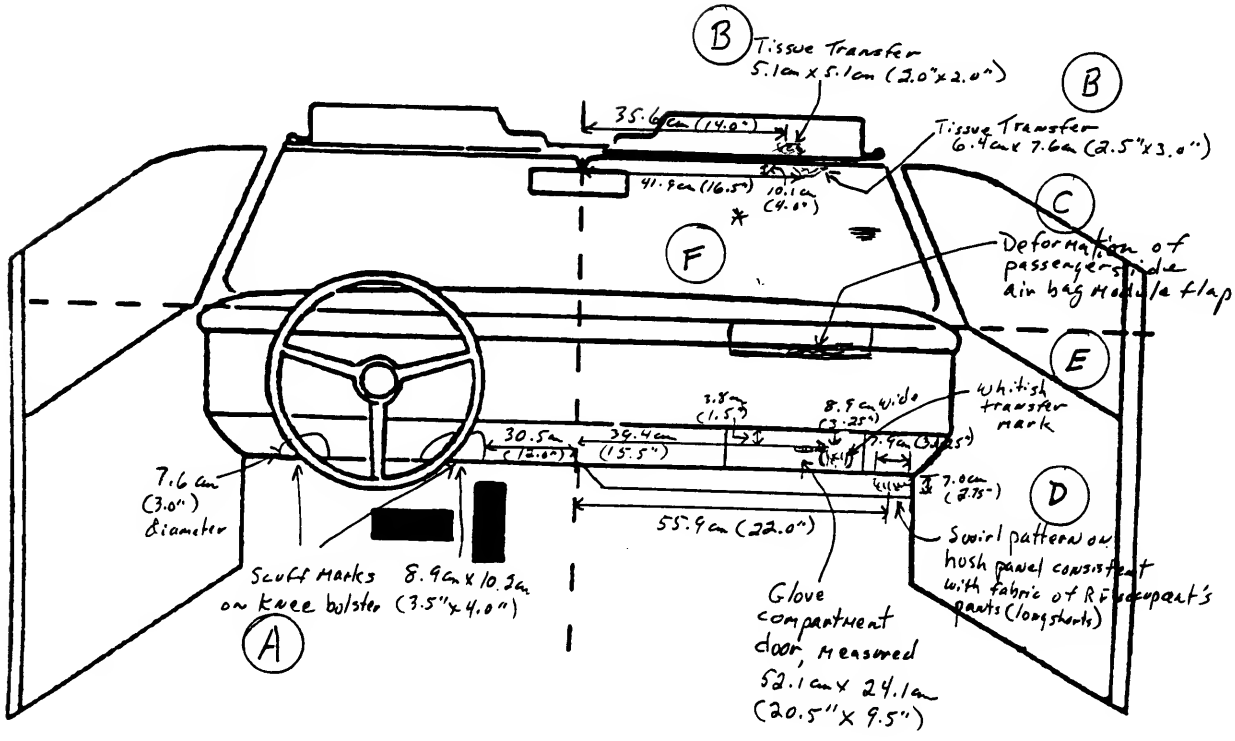
VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment

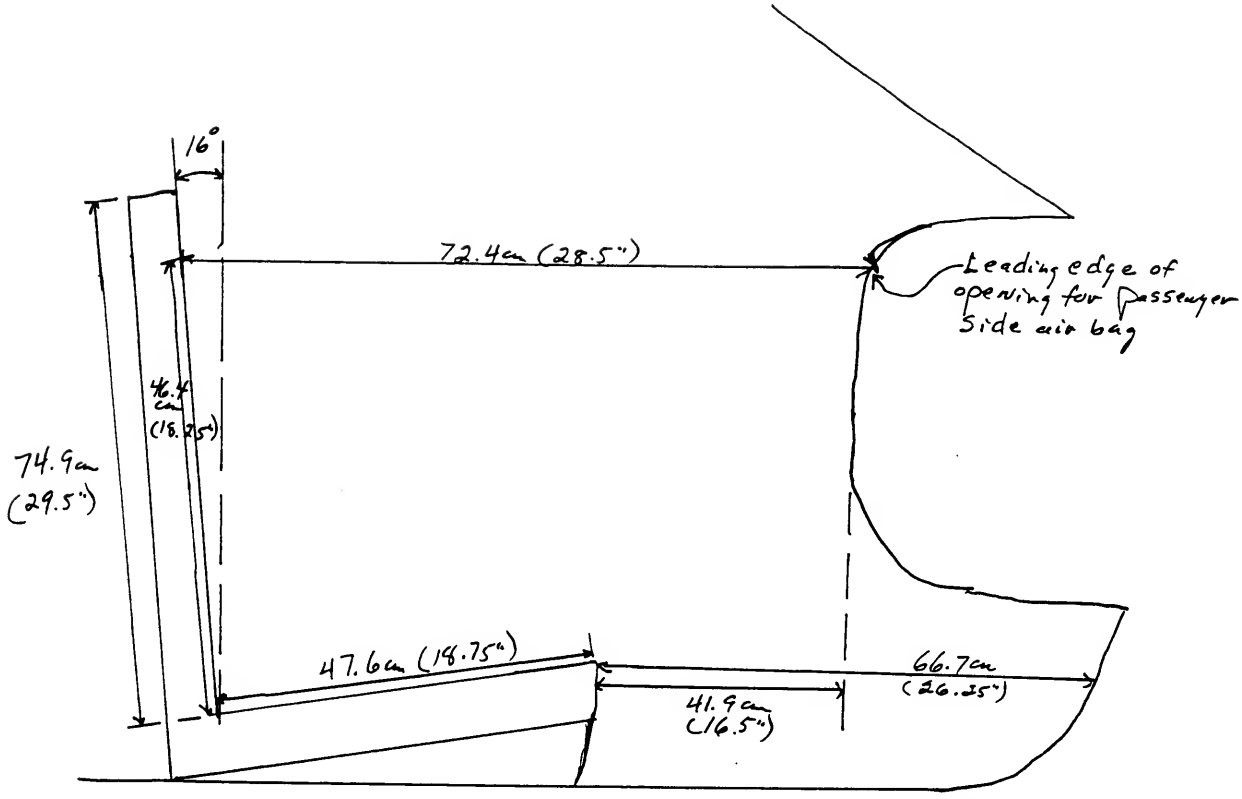




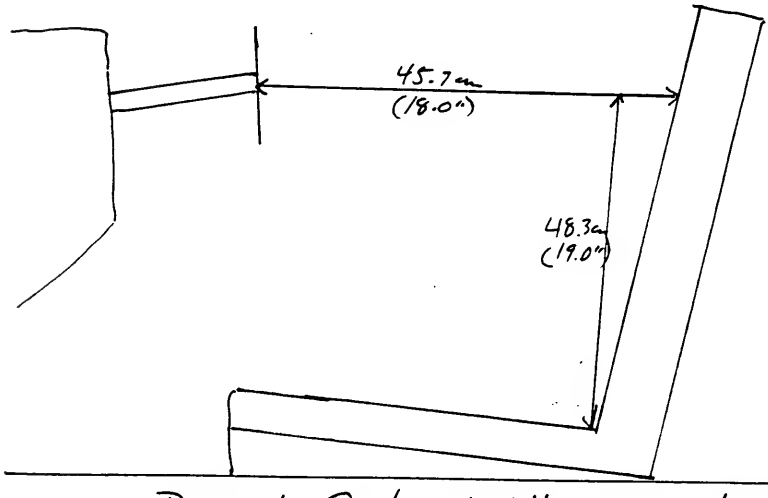




Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure.
Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.
Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.



Right Front Seat- In Full Rear Adjusted Position



Driver's Seat- Slightly rearward of Full Forward Position

POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	014	1	Knees	Scuff marks	2
B	001/201	2	Head/Face	Tissue transfer (tested positive as skin)	1
C	185	2	Head	Deformed	2
D	012 (Hush panel)	2	(R) Knee, Lower leg	Swirl fabric transfer mark	1
E	013	Unk	Post crash	Whitish transfer mark	1
F	001	N/A	N/A	Spider web, black transfer due to contact from air bag module flap	1
G					
H					
I					
J					
K					
L					
M					
N					

CODES FOR INTERIOR COMPONENTS

FRONT
- (001) Windshield
- (002) Mirror
- (003) Sunvisor
- (004) Steering wheel rim
- (005) Steering wheel hub/spoke
- (006) Steering wheel (combination of codes 004 and 005)
- (007) Steering column,transmission selector lever, other attachment
- (008) Cellular telephone or CB radio
- (009) Add on equipment(e.g., tape deck, air conditioner)
- (010) Left instrument panel and below
- (011) Center instrument panel and below
- (012) Right instrument panel and below
- (013) Glove compartment door
- (014) Knee bolster
- (015) Windshield including one or more of the following: front headaer, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (017) Windshield reinforced by exterior object, (specify): _____
- (019) Other front object (specify): _____

LEFT SIDE
- (051) Left side interior surface, excluding hardware or armrests
- (052) Left side hardware or armrest
- (053) Left A (A1/A2)-pillar
- (054) Left B-pillar
- (055) Other left pillar (specify): _____
- (056) Left side window glass
- (057) Left side window frame
- (058) Left side window sill
- (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (060) Other left side object (specify): _____

RIGHT SIDE
- (101) Right side interior surface, excluding hardware or armrests
- (102) Right side hardware or armrest
- (103) Right A (A1/A2)-pillar
- (104) Right B-pillar
- (105) Other right pillar (specify): _____
- (106) Right side window glass
- (107) Right side window frame
- (108) Right side window sill
- (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (110) Other right side object (specify): _____

INTERIOR
- (151) Seat, back support
- (152) Belt restraint webbing/buckle
- (153) Belt restraint B-pillar or door frame attachment point
- (154) Other restraint system component (specify): _____
- (155) Head restraint system
- (160) Other occupants (specify): _____
- (161) Interior loose objects
- (162) Child safety seat (specify): _____
- (163) Other interior object (specify): _____

AIR BAG
- (170) Air bag-driver side
- (175) Air bag compartment cover-driver side
- (180) Air bag-passenger side
- (185) Air bag compartment cover-passenger side
- (190) Other air bag (specify) _____
- (195) Other air bag compartment cover (specify) _____

ROOF
- (201) Front header
- (202) Rear header
- (203) Roof left side rail
- (204) Roof right side rail
- (205) Roof or convertible top

FLOOR
- (251) Floor (including toe pan)
- (252) Floor or console mounted transmission lever, including console
- (253) Parking brake handle
- (254) Foot controls including parking brake

REAR
- (301) Backlight (rear window)
- (302) Backlight storage rack, door, etc.
- (303) Other rear object (specify): _____

ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT
- (401) Hand controls for braking/acceleration
- (402) Steering control devices (attached to OEM steering wheel)
- (403) Steering knob attached to steering wheel
- (405) Replacement steering wheel (i.e., reduced diameter)
- (406) Joy stick steering controls
- (407) Wheelchair tie-downs
- (408) Modification to seat belts, (specify): _____
- (409) Additional or relocated switches, (specify): _____
- (410) Raised roof
- (411) Wall mounted head rest (used behind wheel chair)
- (412) Other adaptive device (specify): _____

CONFIDENCE LEVEL OF CONTACT POINT
- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

MANUAL RESTRAINTS

NOTES: Encode the applicable data **for each seat position** in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4		4
	Evidence of usage	04		04
	Used in this crash?	00		00
	Proper Use	0		0
	Failure Modes	0		0
	Anchorage Adjustment	1		1
SECOND	Availability	4	3	4
	Evidence of usage			
	Used in this crash?			
	Proper Use			
	Failure Modes			
	Anchorage Adjustment			
OTHER	Availability			
	Evidence of usage			
	Used in this crash?			
	Proper Use			
	Failure Modes			
	Anchorage Adjustment			

Manual (Active) Belt System Availability
- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

Integral Belt Partially Destroyed
- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify): _____
- (9) Unknown

Manual (Active) Belt System Use
- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): _____
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown
- (08) Other belt used (specify): _____
- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify): _____
- (99) Unknown if belt used

Proper Use of Manual (Active) Belts
- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

Belt Used Improperly
- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
- (8) Other improper use of manual belt system (specify): _____
- (9) Unknown

Manual (Active) Belt Failure Modes During Accident
- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____
- (6) Broken retractor
- (7) Combination of above (specify): _____
- (8) Other manual belt failure (specify): _____
- (9) Unknown

Shoulder Belt Upper Anchorage Adjustment
- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

AIR BAGS

		Left Front	Right Front	Other
FIRST	Availability/Function	1	1	0
	Deployment	1	1	0
	Failure	1	1	0

Air Bag System Availability/Function
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify): _____
(3) Air bag not reinstalled
(9) Unknown

Are There Indications of Air Bag System Failure? (This Occupant Position)
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(9) Unknown

Frontal Air Bag System Deployment (This Occupant Position)
(0) Not equipped/not available
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, accident sequence undetermined
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

Air Bag(s) Deployment, *Other* Than First Seat Frontal (This Occupant Position)
(0) Not equipped with an *"other"* air bag
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

AUTOMATIC BELTS

		Left	Right
FIRST	Availability/Function	0	0
	Use		
	Type		
	Proper Use		
	Failure Modes		

Automatic (Passive) Belt System Availability/Function
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

Automatic (Passive) Belt System Use
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative)
(3) Automatic belt use unknown
(9) Unknown

Automatic (Passive) Belt System Type
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

Proper Use of Automatic (Passive) Belt System
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of automatic belt system (specify): _____
(9) Unknown

Automatic (Passive) Belt Failure Modes During Accident
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify): _____
(9) Unknown

FIRST SEAT FRONTAL AIR BAGS

NOTES: Encode the applicable data ***for the driver and first seat passenger*** in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

	Driver	Passenger
Type of air bag?	1	1
Flaps open at tear points?	2	2
Flaps damaged?	1	2 Leading edge deformed, Right curved cracked
Air bag damaged?	01	01
Source of air bag damage	01	01
Air bag tethered?	1	2 - two tethers
Air bag have vent ports?	2 - two vent ports	2 - two vent ports
Other occupant contact air bag?	1	1
Occupant wearing eyewear?	2	1

Type of Air Bag
- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

Did Air Bag Module Cover Flap(s) Open At Designated Tear Points?
- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

Were Air Bag Module Cover Flap(s) Damaged?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

Was There Damage To The Air Bag?
- (00) Not equipped/not available
- (01) Not damaged

Yes - Air Bag Damage
- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify): _____
- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

Source of Air Bag Damage
- (00) Not equipped/not available
- (01) Not damaged
- (02) Object worn by occupant, (specify): _____
- (03) Object carried by occupant, (specify): _____
- (04) Adaptive/assistive controls, (specify): _____
- (05) Fire in vehicle
- (06) Thermal burns
- (07) Rescue or emergency efforts
- (88) Other damage source (specify): _____
- (95) Damaged, unknown source
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

Was The Air Bag Tethered?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of tether straps): _____
- (3) Deployed, unknown if tethered
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

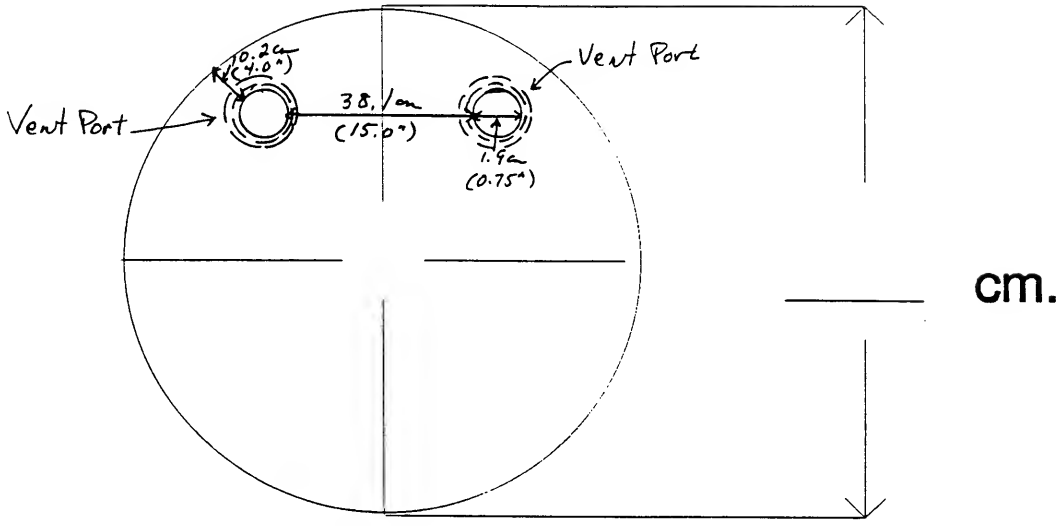
Did The Air Bag Have Vent Ports?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of vent ports): _____
- (3) Deployed, unknown if vent ports present
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

Was the Air Bag in this Occupant's Position Contacted by Another Occupant?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (3) Deployed, unknown if other occupant contact to air bag
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

Was This Occupant Wearing Eye-wear?
- (0) Not equipped/not available
- (1) No
- (2) Eyeglasses (sunglasses)
- (3) Contact lenses
- (4) Deployed, unknown if eyewear worn
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

DRIVER AIR BAG DAMAGE AND CONTACT SKETCHES

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Back)

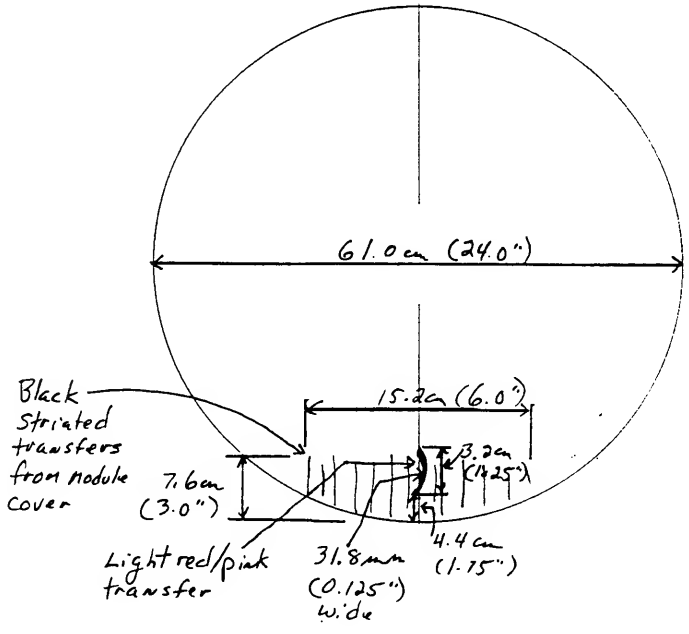


2. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Front)

Air Bag Identification / Serial No.

[redacted]

Non tethered Air Bag



DRIVER AIR BAG SKETCHES (Cont'd)

3. DRIVER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

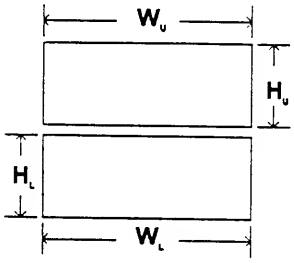
width (W_U) _____

height (H_U) _____

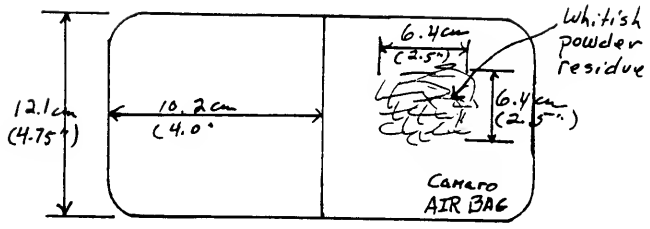
b. Lower Flap

width (W_L) _____

height (H_L) _____



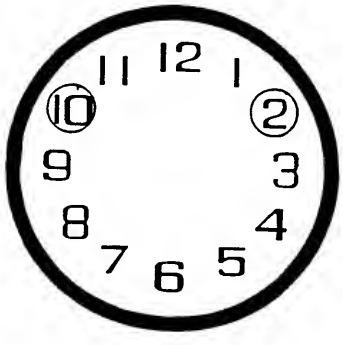
31.8 mm (0.125")
Flap thickness



4. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

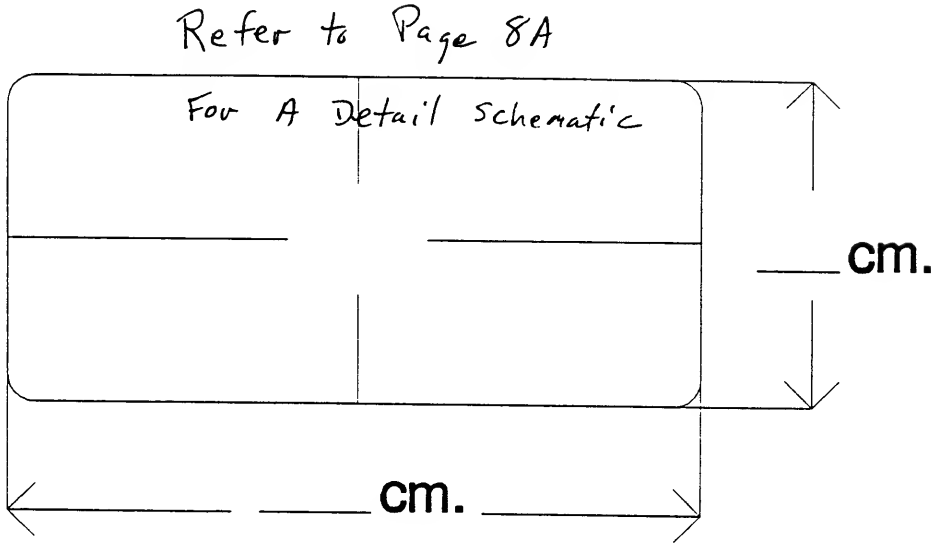
5. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

6. SKETCH LOCATION OF CIRCULAR AIR BAG VENT PORTS

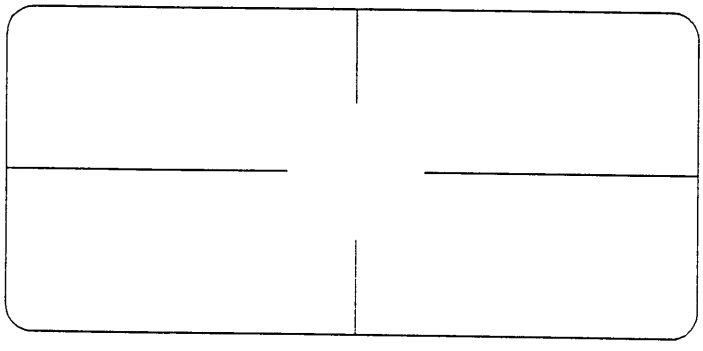


PASSENGER AIR BAG DAMAGE AND CONTACT SKETCHES

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Front)



2. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Back)



PASSENGER AIR BAG SKETCHES (Cont'd)

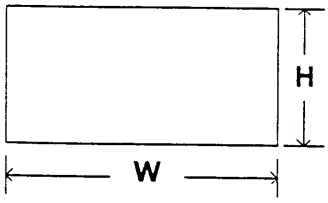
3. PASSENGER AIR BAG MODULE COVER FLAP SIZE (SINGLE)

   a. Flap

   Refer to Page 8B For a Detailed Schematic

   width (W) _____

   height (H) _____



4. PASSENGER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

   a. Upper Flap

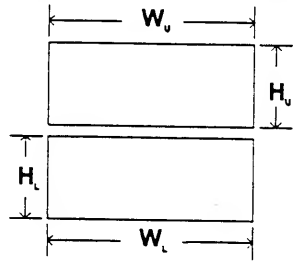
   width (W_U) _____

   height (H_U) _____

   b. Lower Flap

   width (W_L) _____

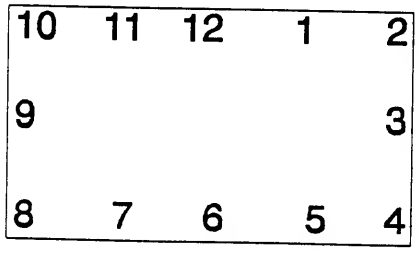
   height (H_L) _____



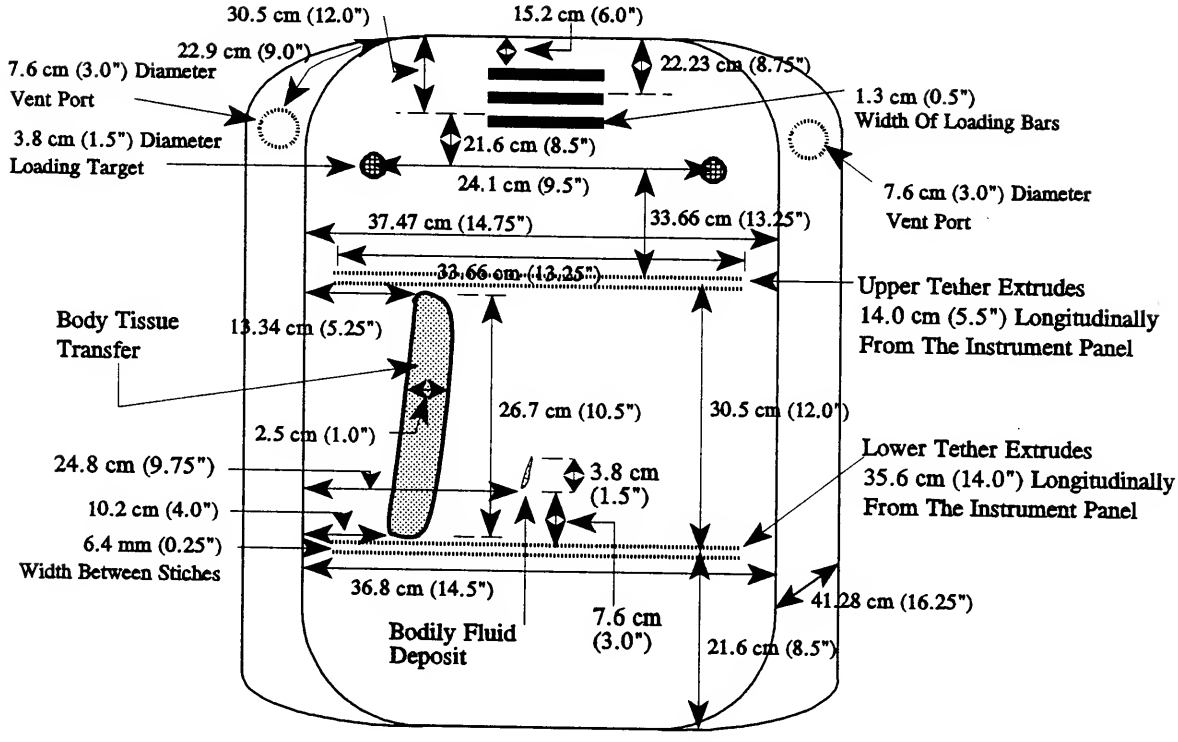
5. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

6. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

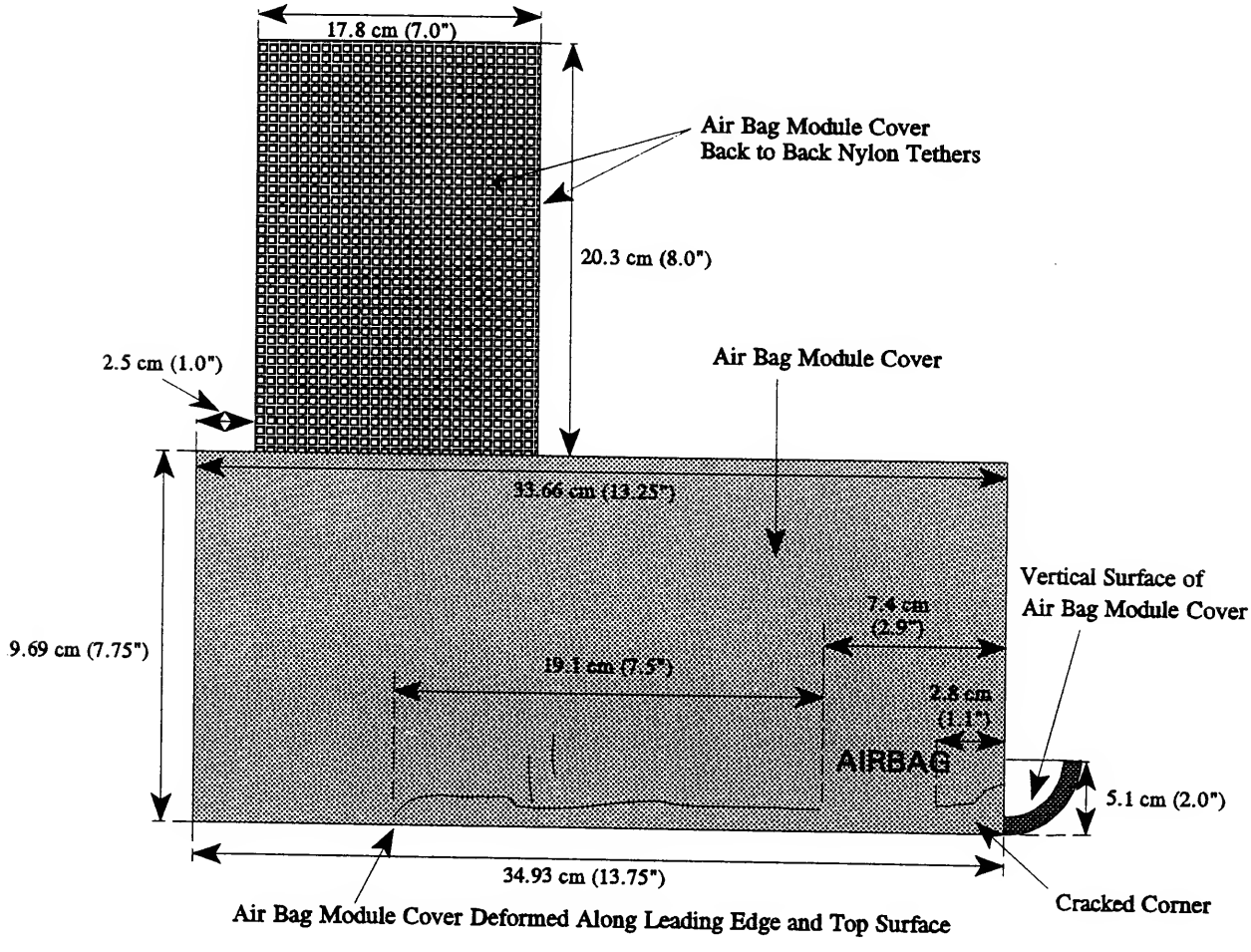
7. SKETCH LOCATION OF RECTANGULAR AIR BAG VENT PORTS



Passenger Side Air Bag



Passenger Side Air Bag Module Cover



"OTHER" AIR BAG DAMAGE AND CONTACT SKETCHES

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON *"OTHER"* AIR BAG (Front)

N/A

2. SKETCH DAMAGE AND CONTACT EVIDENCE ON *"OTHER"* AIR BAG (Back)

"OTHER" AIR BAG SKETCHES (Cont'd)

3. SKETCH AIR BAG MODULE FLAP AND SIZE OR OPENING FOR AIRBAG

N/A

4. SKETCH AIR BAG VENT PORTS

HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	1		1
	Seat Type	01		01
	Seat Performance	1		1
	Seat Orientation	1		1
	Seat Track Position	3		6
	Seat Back Incline Pre/Post Impact	13		13
SECOND	Head Restraint Type/Damage	0		0
	Seat Type	01		01
	Seat Performance	1		1
	Seat Orientation	1		1
	Seat Track Position	1		1
	Seat Back Incline Pre/Post Impact	01		01
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE

(I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

HEAD RESTRAINTS/SEAT EVALUATION

Head Restraint Type/Damage by Occupant at This Occupant Position
(0) No head restraints
(1) Integral — no damage
(2) Integral — damaged during accident
(3) Adjustable — no damage
(4) Adjustable — damaged during accident
(5) Add-on — no damage
(6) Add-on — damaged during accident
(8) Other Specify):_____
(9) Unknown

Seat Type (this Occupant Position)
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Other seat type (specify):
_____
(10) Box mounted seat (i.e., van type)
(99) Unknown

Seat Performance (this Occupant Position)
(0) Occupant not seated or no seat
(1) No seat performance failure(s)
(2) Seat adjusters failed
(3) Seat back folding locks or "seat back" failed (specify):
_____
(4) Seat tracks/anchors failed
(5) Deformed by impact of occupant
(6) Deformed by passenger compartment intrusion (specify):_____
(7) Combination of above (specify):
_____
(8) Other (specify):
_____
(9) Unknown

Seat Orientation (this Occupant Position)
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
_____
(9) Unknown

Seat Track Adjusted Position Prior To Impact
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

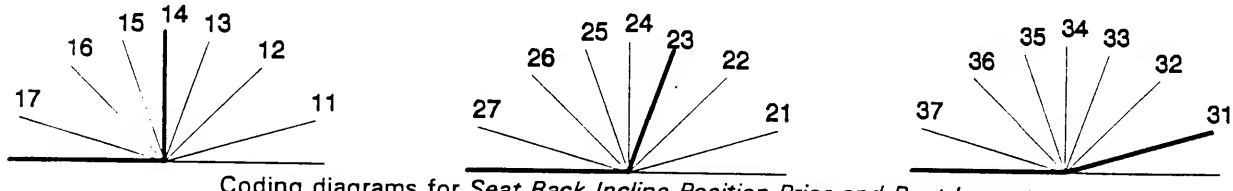
Seat Back Incline Prior and Post Impact
(00) Occupant not seated or no seat
(01) Not adjustable

Upright prior to impact
(11) Moved to completely rearward position
(12) Moved to rearward midrange position
(13) Moved to slightly rearward position
(14) Retained pre-impact position
(15) Moved to slightly forward position
(16) Moved to forward midrange position
(17) Moved to completely forward position

Slightly reclined prior to impact
(21) Moved to completely rearward position
(22) Moved to rearward midrange position
(23) Retained pre-impact postion
(24) Moved to upright position
(25) Moved to slightly forward position
(26) Moved to forward midrange position
(27) Moved to completely forward position

Completely reclined prior to impact
(31) Retained pre-impact position
(32) Moved to rearward midrange position
(33) Moved to slightly rearward position
(34) Moved to upright position
(35) Moved to slightly forward position
(36) Moved to forward midrange position
(37) Moved to completely forward position

(99) Unknown



Coding diagrams for *Seat Back Incline Position Prior and Post Impact*

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage						
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

1. Type of Child Safety Seat

   (0) No child safety seat
   (1) Infant seat
   (2) Toddler seat
   (3) Convertible seat
   (4) Booster seat
   (7) Other type child safety seat (specify):

   _____

   (8) Unknown child safety seat type
   (9) Unknown if child safety seat used

2. Child Safety Seat Orientation

   (00) No child safety seat

   Designed for Rear Facing for This Age/Weight
   (01) Rear facing
   (02) Forward facing
   (08) Other orientation (specify):

   _____

   (09) Unknown orientation

   Designed for Forward Facing for This Age/Weight
   (11) Rear facing
   (12) Forward facing
   (18) Other orientation (specify):

   _____

   (19) Unknown orientation

   Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
   (21) Rear facing
   (22) Forward facing
   (28) Other orientation (specify):

   _____

   (29) Unknown orientation

   (99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage

4. Child Safety Seat Shield Usage

5. Child Safety Seat Tether Usage
   Note: Options Below Are Used for Variables 3-5.

   (00) No child safety seat

   Not Designed with Harness/Shield/Tether
   (01) After market harness/shield/tether added, not used
   (02) After market harness/shield/tether used
   (03) Child safety seat used, but no after market harness/shield/tether added
   (09) Unknown if harness/shield/tether added or used

   Designed With Harness/Shield/Tether
   (11) Harness/shield/tether not used
   (12) Harness/shield/tether used
   (19) Unknown if harness/shield/tether used

   Unknown If Designed With Harness/Shield/Tether
   (21) Harness/shield/tether not used
   (22) Harness/shield/tether used
   (29) Unknown if harness/shield/tether used

   (99) Unknown if child safety seat used

6. Child Safety Seat Make/Model
   (Specify make/model and occupant number)

   _____

   _____

   _____

   _____

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

EJECTION No [✓] Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

Ejection
(1) Complete ejection
(2) Partial ejection
(3) Ejection, Unknown degree
(9) Unknown

Ejection Area
(1) Windshield
(2) Left front
(3) Right front
(4) Left rear
(5) Right rear
(6) Rear
(7) Roof
(8) Other area (e.g., back of pickup, etc.) (specify): _____
(9) Unknown

Ejection Medium
(1) Door/hatch/tailgate
(2) Nonfixed roof structure
(3) Fixed glazing
(4) Nonfixed glazing (specify): _____
(5) Integral structure
(8) Other medium (specify): _____
(9) Unknown

Medium Status (Immediately Prior to Impact)
(1) Open
(2) Closed
(3) Integral structure
(9) Unknown

ENTRAPMENT No [✓] Yes [ ]

Describe entrapment mechanism: _____

Component(s): _____

(Note in vehicle interior diagram)

Appendix G

NASS Occupant Forms

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number — —
2. Case Number - Stratum 95-20
3. Vehicle Number 01
4. Occupant Number 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 42
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex 2
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height 160
Code actual height to the nearest centimeter.
(999) Unknown

63 inches X 2.54 = 160 centimeters

8. Occupant's Weight 054
Code actual weight to the nearest kilogram.
(999)Unknown

119 pounds X .4536 = 054 kilograms

9. Occupant's Role 1
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position 11
Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture 0
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

HS Form 433A (1/95)

This report is authorized by P.L. 89-563, Title 1, Section 106, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.

EJECTION/ENTRAPMENT

12. Ejection — 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area — 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.) (specify):_____
    (9) Unknown

14. Ejection Medium — 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) — 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment — 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility — 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability — 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify):
(9) Unknown

19. Manual (Active) Belt System Use — 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify):
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify):
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify):
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts — 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):
(8) Other improper use of manual belt system (specify):
(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident — 0
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):
(6) Broken retractor
(7) Combination of above (specify):
(8) Other manual belt failure (specify):
(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment — 1
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function — 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use — 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type — 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System — 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):
(8) Other improper use of automatic belt system (specify):
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident — 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):
(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 4
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 2
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[✓] Vehicle inspection
[ ] Official injury data
[ ] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

    Specify type of "other" air bag present: _____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) ___
    (0) Not equipped/not available
    (1) No
    (2) Yes (specify): _____
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1
(0) Not equipped/not available
(1) No previous accidents
[redacted] Interview
Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 1
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01
(00) Not equipped/not available
_____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 1
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + - 999
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 01
(00) Not equipped/not available
(01) Not damaged

Yes - Air Bag Damage
(02) Ruptured
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 0 1
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
(03) Object carried by occupant, (specify):
(04) Adaptive/assistive controls, (specify):
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 2
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
2 vent ports in 10 o'clock/2 o'clock position
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify):
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 2
(0) Not equipped/not available
(1) No
(2) Eyeglasses (sunglasses)
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 1
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
(9) Unknown

50. Seat Type (this Occupant Position) 0 2
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
(99) Unknown

51. Seat Orientation (this Occupant Position) 1
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 3
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions – Close to full forward
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

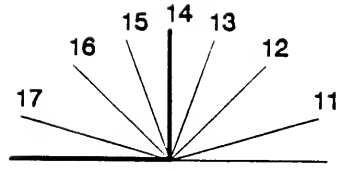
53. Seat Back Incline Prior and Post Impact 2 3
    (00) Occupant not seated or no seat
    (01) Not adjustable

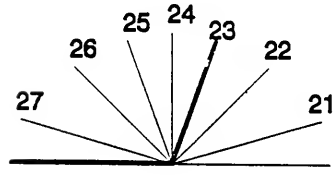
    Upright prior to impact
    (11) Moved to completely rearward position
    (12) Moved to rearward midrange position
    (13) Moved to slightly rearward position
    (14) Retained pre-impact position
    (15) Moved to slightly forward position
    (16) Moved to forward midrange position
    (17) Moved to completely forward position

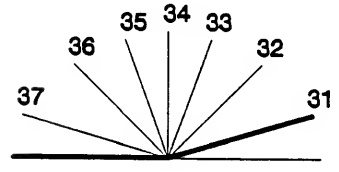
    Slightly reclined prior to impact
    (21) Moved to completely rearward position
    (22) Moved to rearward midrange position
    (23) Retained pre-impact position
    (24) Moved to upright position
    (25) Moved to slightly forward position
    (26) Moved to forward midrange position
    (27) Moved to completely forward position

    Completely reclined prior to impact
    (31) Retained pre-impact position
    (32) Moved to rearward midrange position
    (33) Moved to slightly rearward position
    (34) Moved to upright position
    (35) Moved to slightly forward position
    (36) Moved to forward midrange position
    (37) Moved to completely forward position

    (99) Unknown







54. Seat Performance (this Occupant Position) 1
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed (specify):_____
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion, (specify):_____
    _____
    (7) Combination of above (specify):
    _____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify): _____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify): _____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify): _____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify): _____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify): _____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 00

59. Child Safety Seat Shield Usage 00

60. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 2

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 0
(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 0
(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 000
(00) Not Hospitalized
_____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 00
_____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death — 00
Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death — 00

68. 2nd Medically Reported Cause of Death — 00

69. 3rd Medically Reported Cause of Death — 00
Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify): _____
(97) Other result (includes fatal ruled disease) (specify): _____
(99) Unknown

70. Number of Recorded Injuries for This Occupant — 02
Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) — 01
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? — 1
(1) No - blood not given
(2) Yes - blood given (specify units): _____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 — 01
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination — 1
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify): _____
(9) Unknown if belt used

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT INJURY FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	—	3. Vehicle Number	01
2. Case Number - Stratum	95-20	4. Occupant Number	01

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
	Contusion (R) cheek										
1st	5. 7	6. 2	7. 9	8. 04	9. 02	10. 1	11. 1	12. 170	13. 1	14. 1	15. 00
	Contusion (R) neck										
2nd	16. 7	17. 3	18. 9	19. 04	20. 02	21. 1	22. 1	23. 170	24. 1	25. 1	26. 00
3rd	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.
4th	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.
5th	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.
6th	60.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
7th	71.	72.	73.	74.	75.	76.	77.	78.	79.	80.	81.
8th	82.	83.	84.	85.	86.	87.	88.	89.	90.	91.	92.
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.

HS Form 433B (1/95)

This raport is authorized by P.L. 89-563, Title 1, Section 106, 108, and 112. Whiia you are not raquirad to respond, your cooperation is naedad to make tha results of this data collection affort comprahensive, accurate, and timely.

OCCUPANT INJURY DATA

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
11th	—	—	—	— —	— —	—	—	— — —	—	—	— —
12th	—	—	—	— —	— —	—	—	— — —	—	—	— —
13th	—	—	—	— —	— —	—	—	— — —	—	—	— —
14th	—	—	—	— —	— —	—	—	— — —	—	—	— —
15th	—	—	—	— —	— —	—	—	— — —	—	—	— —
16th	—	—	—	— —	— —	—	—	— — —	—	—	— —
17th	—	—	—	— —	— —	—	—	— — —	—	—	— —
18th	—	—	—	— —	— —	—	—	— — —	—	—	— —
19th	—	—	—	— —	— —	—	—	— — —	—	—	— —
20th	—	—	—	— —	— —	—	—	— — —	—	—	— —
21st	—	—	—	— —	— —	—	—	— — —	—	—	— —
22nd	—	—	—	— —	— —	—	—	— — —	—	—	— —
23rd	—	—	—	— —	— —	—	—	— — —	—	—	— —
24th	—	—	—	— —	— —	—	—	— — —	—	—	— —
25th	—	—	—	— —	— —	—	—	— — —	—	—	— —

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes Muscles/ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Vessels, Nerves, Organs. Bones, Joints are assigned consecutive two digit numbers beginning with 02.

The exceptions to this rule apply to:

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC
(04) Level
(06) of
(08) Consciousness
(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor Injury
(2) Moderate Injury
(3) Serious Injury
(4) Severe Injury
(5) Critical Injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region

SOURCE OF INJURY DATA

OFFICIAL RECORDS
(1) Autopsy records with or without hospital/medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify): _____
(9) Police

INJURY SOURCE CONFIDENCE LEVEL

(1) Certain
(2) Probable
(3) Possible
(9) Unknown

DIRECT/INDIRECT INJURY

(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

INJURY SOURCES

FRONT
(001) Windshiald
(002) Mirror
(003) Sunviaor
(004) Staaring wheal rim
(005) Steering wheal hub/spoke
(006) Steering wheel (combination of codes 004 and 005)
(007) Stearing column, transmission selector levar, other attachment
(008) Cellular telephone or CB radio
(009) Add on equipment (e.g., tape deck, air conditioner)
(010) Left instrument panal and below
(011) Center inatrument panel and below
(012) Right inatrument panel and below
(013) Glove compartment door
(014) Knee bolater
(015) Windahield including one or more of the following: front headar, A (A1/A2)-pillar, instrument panel, mirror, or ataering aaaembly (driver aide only)
(016) Windshield including one or mora of tha following: front header, A (A1/A2)-pillar, instrumant penel, or mirror (pasaengar side only)
(017) Windshield reinforced by axterior objact (specify)

(019) Othar front object (apacify):

LEFT SIDE
(051) Left aide interior surfaca, axcluding hardware or armreats
(052) Laft side hardware or armreat
(053) Laft A (A1/A2)-pillar
(054) Left B-piller
(055) Other left pillar (spacify):

(056) Left aide window glaas
(057) Left aide window frame
(058) Left aide window aill
(059) Left aide window glasa including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof aide reil.
(060) Othar left aide object (apecify):

RIGHT SIDE
(101) Right alde Intarior aurfaca, excludlng hardwara or armraats
(102) Right sida hardware or armrest
(103) Right A (A1/A2)-pillar
(104) Right B-pillar
(105) Other right piller (specify):

(106) Right side window gless
(107) Right side window frame
(108) Right sida window sill
(109) Right side window glaas including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(110) Other right aide object (spacify):

INTERIOR
(151) Seat, back support
(152) Belt reatraint webbing/buckle
(153) Belt restraint B-pillar or door frame ettechment point
(154) Other restraint system component (specify):

(155) Head restraint aystem
(160) Other occupenta (specify):

(161) Intarior looae objects
(162) Child aafaty seat (specify):

(163) Other interior object (apecify):

AIR BAG
(170) Air bag-drivar aida
(171) Air bag-driver aide and ayewear
(172) Air bag-driver side and jewalry
(173) Air bag-driver aide and object held
(174) Air bag-driver aide and object in mouth
(175) Air bag compartment cover-driver side
(176) Air bag compartment covar-drivar side and eyawear
(177) Alr bag compartment cover-drivar aide and jewelry
(178) Air beg compartment cover-driver aide and object held
(179) Alr bag compertment cover-drivar aide and object In mouth
(180) Alr bag-paaaenger aide
(181) Alr bag-paasengar alde and eyewaar
(182) Alr bag-paaaenger alde and jewalry
(183) Air bag-passengar sida and object hald
(184) Air bag-passangar sida and object in mouth
(185) Air bag compartmant cover-paaaengar side
(186) Air bag compartment covar-passanger sida and eyewear
(187) Air bag compertment cover-pasaanger side end jewelry
(188) Air bag compartment cover-passangar aida and object hald
(189) Air bag compartment cover-paaaenger sida and object in mouth
(190) Other air bag (specify)

(195) Othar air bag compartment cover (apacify)

ROOF
(201) Front headar
(202) Rear headar
(203) Roof laft sida rail
(204) Roof right aide rail
(205) Roof or convertible top

FLOOR
(251) Floor (including toe pan)
(252) Floor or conaole mounted transmiasion laver, including console
(253) Parking brake handle
(254) Foot controls including parking braka

REAR
(301) Backlight (rear window)
(302) Backlight atorage rack, door, atc.
(303) Other rear object (spacify):

ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT
(401) Hend controls for braking/accaleration
(402) Staering control devices (attached to OEM ateering wheel)
(403) Steering knob attached to staering whaal
(405) Replacamant staaring wheel (i.e., raducad diamatar)
(406) Joy atick ataaring controls
(407) Wheelchair tie-downa
(408) Modification to aeat belts, (apecify):
(409) Additional or ralocated awitchaa, (apaclfy):

(410) Raiaed roof
(411) Wall mountad haad rast (uaad bahind whael cheir)
(412) Othar adaptiva device (specify):

EXTERIOR of OCCUPANT'S VEHICLE
(451) Hood
(452) Outside hardwere (e.g., outside mirror, antenna)
(453) Other axterior surface or tires (specify):

(454) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(501) Front bumper
(502) Hood edga
(503) Other front of vehicle (spacify):

(504) Hood
(505) Hood ornament
(506) Windshield, roof reil, A-pillar
(507) Side surface
(508) Side mirrors
(509) Other side protrusions (specify):

(510) Reer surfece
(511) Undercarriage
(512) Tires and wheals
(513) Othar exterior of othar motor vehicle (spacify):

(514) Unknown exterior of other motor vehicle

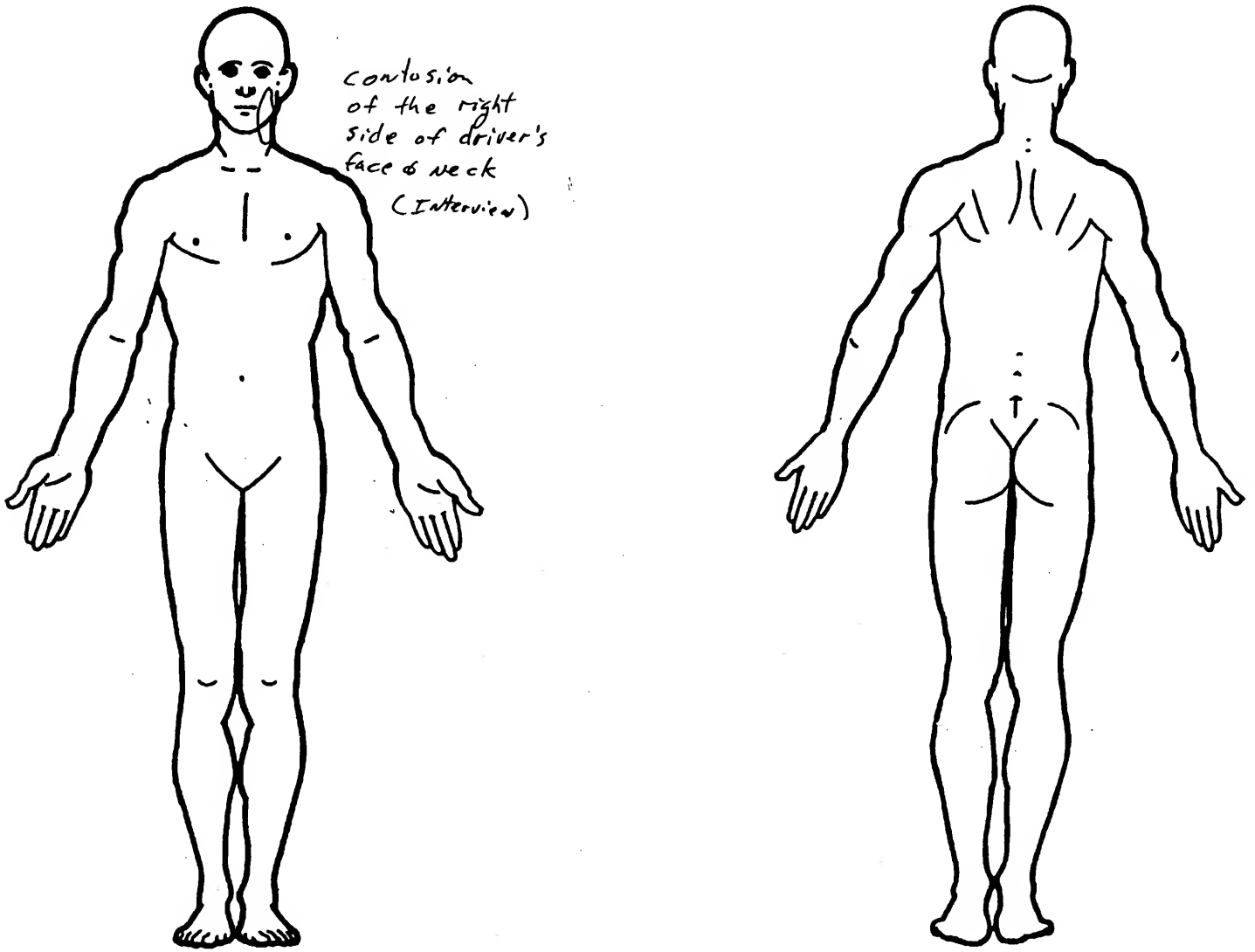
OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(551) Ground
(598) Othar vehicle or objact (specify):

(599) Unknown vehicle or object

NONCONTACT INJURY
(601) Fira in vehicle
(602) Flying glaas
(603) Othar noncontact injury source (spacify):
(604) Air bag axhaust gases
(697) Injurad, unknown sourca

OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

___ No

___ Yes

Blood Alcohol Level (mg/dl)

BAL = ____

Glasgow Coma Scale Score

GCSS = ____

Units of Blood Given

Units = ____

Arterial Blood Gases

pH = __.__

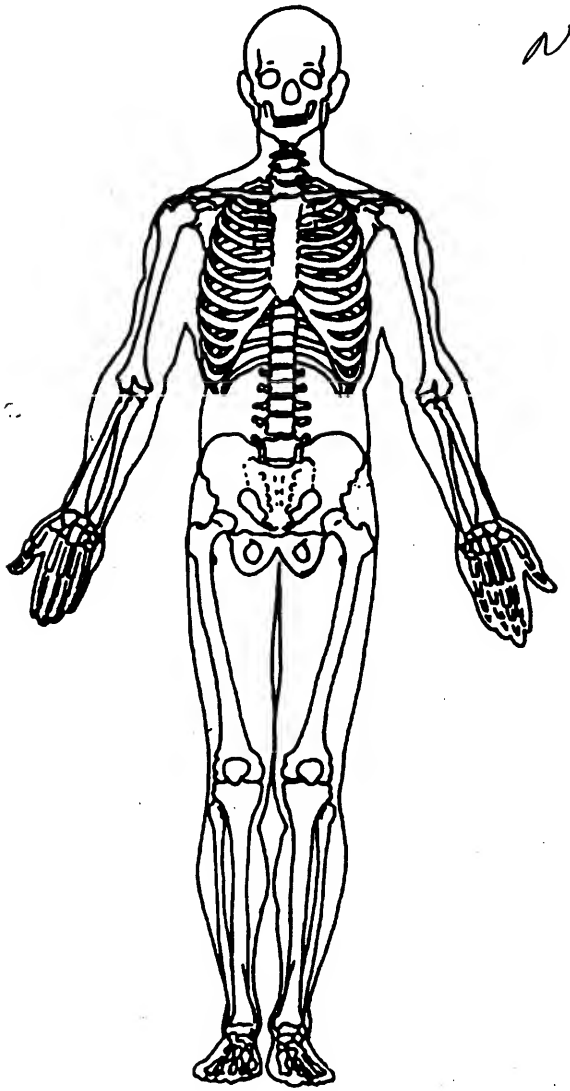
PO_2 = ____

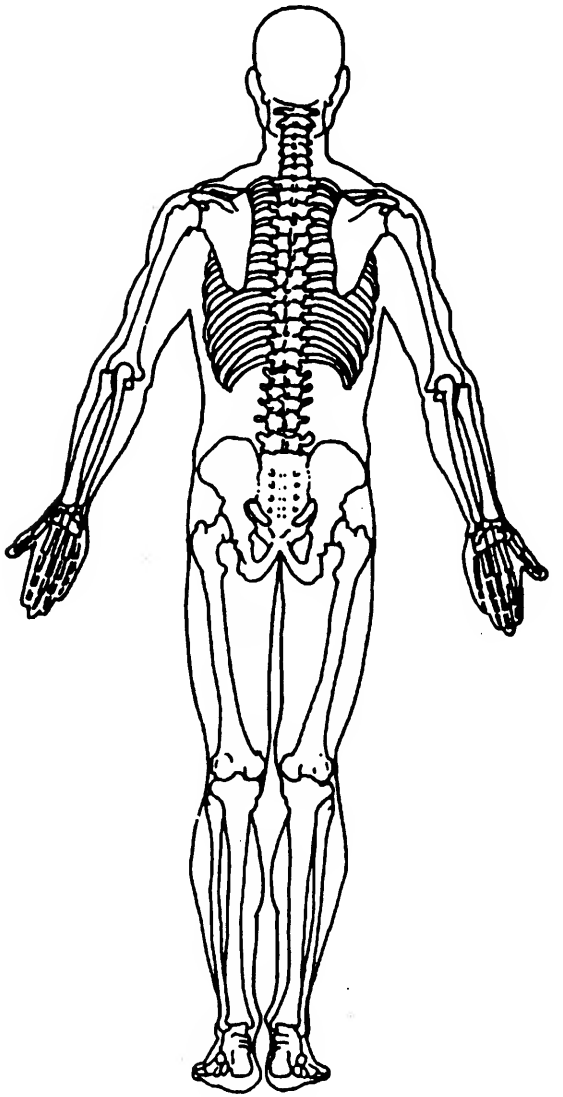
PCO_2 ____

HCO_3 ____

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

None





OFFICIAL INJURY DATA — INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

None

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approvad
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ____
2. Case Number - Stratum 95-20
3. Vehicle Number 01
4. Occupant Number 02

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 05
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex 1
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height 105
Code actual height to the nearest centimeter.
(999) Unknown

41 inches X 2.54 = 105 centimeters

8. Occupant's Weight 025
Code actual weight to the nearest kilogram.
(999)Unknown

55 pounds X .4536 = 025 kilograms

9. Occupant's Role 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position 13

Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture 0
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

HS Form 433A (1/95)

EJECTION/ENTRAPMENT

12. Ejection — 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area — 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.) (specify):_____
    (9) Unknown

14. Ejection Medium — 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) — 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment — 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility — 1
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability — 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use — 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify):

(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify):
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts — 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident — 0
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment — 1
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function — 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use — 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type — 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System — 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident — 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):

(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use — 4
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify):
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function — 2
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[✓] Vehicle inspection
[✓] Official injury data
[ ] Driver/occupant interview
[4] Other (specify): State crime laboratory analysis
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) — 1
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify):
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) — 1
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) — 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify):
    (3) Air bag not reinstalled
    (9) Unknown

    Specify type of "other" air bag present:

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) — 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) — 1
    (0) Not equipped/not available
    (1) No
    (2) Yes. (specify):
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1
(0) Not equipped/not available
(1) No previous accidents

Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 1
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01
(00) Not equipped/not available
_____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 1
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + - 999
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 2
(0) Not equipped/not available
(1) No
(2) Yes (specify): de formed along leading edge
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 01
(00) Not equipped/not available
(01) Not damaged

Yes - Air Bag Damage
(02) Ruptured
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage — 01
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
(03) Object carried by occupant, (specify):
(04) Adaptive/assistive controls, (specify):
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? — 2
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps): 2 tethers
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? — 2
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports): 2 vent ports located on lateral surfaces
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? — 1
(0) Not equipped/not available
(1) No
(2) Yes (specify):
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? — 1
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position — 1
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
(9) Unknown

50. Seat Type (this Occupant Position) — 02
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
(99) Unknown

51. Seat Orientation (this Occupant Position) — 1
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact — 6
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

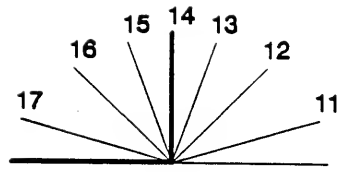
53. Seat Back Incline Prior and Post Impact 23
(00) Occupant not seated or no seat
(01) Not adjustable

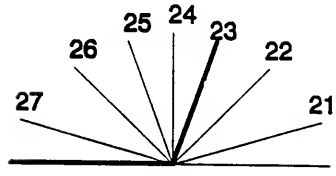
Upright prior to impact
(11) Moved to completely rearward position
(12) Moved to rearward midrange position
(13) Moved to slightly rearward position
(14) Retained pre-impact position
(15) Moved to slightly forward position
(16) Moved to forward midrange position
(17) Moved to completely forward position

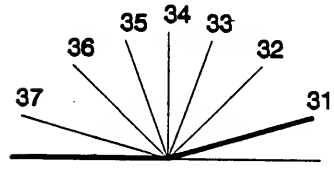
Slightly reclined prior to impact
(21) Moved to completely rearward position
(22) Moved to rearward midrange position
(23) Retained pre-impact position
(24) Moved to upright position
(25) Moved to slightly forward position
(26) Moved to forward midrange position
(27) Moved to completely forward position

Completely reclined prior to impact
(31) Retained pre-impact position
(32) Moved to rearward midrange position
(33) Moved to slightly rearward position
(34) Moved to upright position
(35) Moved to slightly forward position
(36) Moved to forward midrange position
(37) Moved to completely forward position

(99) Unknown







54. Seat Performance (this Occupant Position) 1
(0) Occupant not seated or no seat
(1) No seat performance failure(s)
(2) Seat adjusters failed
(3) Seat back folding locks or "seat back" failed (specify):_____
(4) Seat track/anchors failed
(5) Deformed by impact of occupant
(6) Deformed by passenger compartment intrusion, (specify):_____
_____
(7) Combination of above (specify):
_____
(8) Other (specify): _____
(9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify): _____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify): _____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify): _____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify): _____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify): _____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 00

59. Child Safety Seat Shield Usage 00

60. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 4

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 1

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 2

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 01

(00) Not Hospitalized
_____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97

_____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 16
_____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 17

68. 2nd Medically Reported Cause of Death 05

69. 3rd Medically Reported Cause of Death 06
_____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 20
_____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 03
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 10
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 1
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT INJURY FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	____	3. Vehicle Number	01
2. Case Number - Stratum	95-20	4. Occupant Number	02

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
(L) subgaleal contusions											
1st	5. 1	6. 1	7. 9	8. 04	9. 02	10. 1	11. 2	12. 180	13. 1	14. 1	15. 00
(R) subgaleal contusion											
2nd	16. 1	17. 1	18. 9	19. 04	20. 02	21. 1	22. 1	23. 201	24. 1	25. 1	26. 00
(R) brain contusions											
3rd	27. 1	28. 1	29. 4	30. 06	31. 12	32. 3	33. 1	34. 201	35. 1	36. 1	37. 00
(L) brain contusions											
4th	38. 1	39. 1	40. 4	41. 06	42. 12	43. 3	44. 2	45. 180	46. 1	47. 1	48. 00
Subdural hemorrhage											
5th	49. 1	50. 1	51. 4	52. 06	53. 52	54. 4	55. 9	56. 180 201	57. 1	58. 1	59. 00
Subarachnoid hemorrhage											
6th	60. 1	61. 1	62. 4	63. 06	64. 84	65. 3	66. 5	67. 180 201	68. 1	69. 1	70. 00
Ventricles of the brain compressed											
7th	71. 1	72. 1	73. 4	74. 06	75. 70	76. 3	77. 9	78. 180 201	79. 1	80. 1	81. 00
Contusion of (R) face											
8th	82. 1	83. 2	84. 9	85. 04	86. 02	87. 1	88. 2	89. 180	90. 1	91. 1	92. 00
Hemorrhages of both eyes											
9th	93. 1	94. 2	95. 4	96. 04	97. 16	98. 1	99. 3	100. 180	101. 1	102. 1	103. 00
Contusions of (R) face											
10th	104. 1	105. 2	106. 9	107. 04	108. 02	109. 1	110. 1	111. 20 1	112. 1	113. 1	114. 00

HS Form 433B (1/95)

This report is authorized by P.L. 89-563, Title 1, Section 106, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.

OCCUPANT INJURY DATA

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
	Contusion of ® cheek										
11th	1	2	9	04	02	1	1	001	1	1	00
	Abrasion of ® cheek										
12th	1	2	9	02	02	1	1	001	1	1	00
	Laceration of lips										
13th	1	2	9	06	02	1	8	180	1	1	00
	Abrasion ® face										
14th	1	2	9	02	02	1	2	180	1	1	00
	Abrasion ® neck										
15th	1	3	9	02	02	1	2	180	1	1	00
	Separation of intervertebral disc										
16th	1	6	5	02	99	2	6	180	1	1	00
	Disruption of the upper spinal cord										
17th	1	6	4	02	48	5	6	180	1	1	00
	Contusion ® chest										
18th	1	4	9	04	02	1	2	697	9	1	00
	Laceration of the inferior Vena cava										
19th	1	5	2	12	02	3	7	180	1	1	00
	Abrasion ® wrist										
20th	1	7	9	02	02	1	2	697	9	1	00
21st	—	—	—	— —	— —	—	—	— — —	—	—	— —
22nd	—	—	—	— —	— —	—	—	— — —	—	—	— —
23rd	—	—	—	— —	— —	—	—	— — —	—	—	— —
24th	—	—	—	— —	— —	—	—	— — —	—	—	— —
25th	—	—	—	— —	— —	—	—	— — —	—	—	— —

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes Muscles/ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Vessels, Nerves, Organs. Bones, Joints are assigned consecutive two digit numbers beginning with 02.

The exceptions to this rule apply to:

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC

(04) Level
(06) of
(08) Consciousness

(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor Injury
(2) Moderate Injury
(3) Serious Injury
(4) Severe Injury
(5) Critical Injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region

SOURCE OF INJURY DATA

OFFICIAL RECORDS
(1) Autopsy records with or without hospital/medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify):

(9) Police

INJURY SOURCE CONFIDENCE LEVEL

(1) Certain
(2) Probable
(3) Possible
(9) Unknown

DIRECT/INDIRECT INJURY

(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

INJURY SOURCES

FRONT
(001) Windshield
(002) Mirror
(003) Sunvisor
(004) Steering wheel rim
(005) Steering wheel hub/spoke
(006) Steering wheel (combination of codes 004 and 005)
(007) Steering column, transmission selector lever, other attachment
(008) Cellular telephone or CB radio
(009) Add on equipment (e.g., tape deck, air conditioner)
(010) Left instrument panel and below
(011) Center instrument panel and below
(012) Right instrument panel and below
(013) Glove compartment door
(014) Knee bolster
(015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
(016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
(017) Windshield reinforced by exterior object (specify)

_____

(019) Other front object (specify):

_____

LEFT SIDE
(051) Left side interior surface, excluding hardware or armrests
(052) Left side hardware or armrest
(053) Left A (A1/A2)-pillar
(054) Left B-pillar
(055) Other left pillar (specify):

_____

(056) Left side window glass
(057) Left side window frame
(058) Left side window sill
(059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(060) Other left side object (specify):

_____

RIGHT SIDE
(101) Right side interior surface, excluding hardware or armrests
(102) Right side hardware or armrest
(103) Right A (A1/A2)-pillar
(104) Right B-pillar
(105) Other right pillar (specify):

_____

(106) Right side window glass
(107) Right side window frame
(108) Right side window sill
(109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(110) Other right side object (specify):

_____

INTERIOR
(151) Seat, back support
(152) Belt restraint webbing/buckle
(153) Belt restraint B-pillar or door frame attachment point
(154) Other restraint system component (specify):

_____

(155) Head restraint system
(160) Other occupants (specify):

_____

(161) Interior loose objects
(162) Child safety seat (specify):

_____

(163) Other interior object (specify):

_____

AIR BAG
(170) Air bag-driver side
(171) Air bag-driver side and eyewear
(172) Air bag-driver side and jewelry
(173) Air bag-driver side and object held
(174) Air bag-driver side and object in mouth
(175) Air bag compartment cover-driver side
(176) Air bag compartment cover-driver side and eyewear
(177) Air bag compartment cover-driver side and jewelry
(178) Air bag compartment cover-driver side and object held
(179) Air bag compartment cover-driver side and object in mouth
(180) Air bag-passenger side
(181) Air bag-passenger side and eyewear
(182) Air bag-passenger side and jewelry
(183) Air bag-passenger side and object held
(184) Air bag-passenger side and object in mouth
(185) Air bag compartment cover-passenger side
(186) Air bag compartment cover-passenger side and eyewear
(187) Air bag compartment cover-passenger side and jewelry
(188) Air bag compartment cover-passenger side and object held
(189) Air bag compartment cover-passenger side and object in mouth
(190) Other air bag (specify)

_____

(195) Other air bag compartment cover (specify)

_____

ROOF
(201) Front header
(202) Rear header
(203) Roof left side rail
(204) Roof right side rail
(205) Roof or convertible top

FLOOR
(251) Floor (including toe pan)
(252) Floor or console mounted transmission lever, including console
(253) Parking brake handle
(254) Foot controls including parking brake

REAR
(301) Backlight (rear window)
(302) Backlight storage rack, door, etc.
(303) Other rear object (specify):

_____

ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT
(401) Hand controls for braking/acceleration
(402) Steering control devices (attached to OEM steering wheel)
(403) Steering knob attached to steering wheel
(405) Replacement steering wheel (i.e., reduced diameter)
(406) Joy stick steering controls
(407) Wheelchair tie-downs
(408) Modification to seat belts, (specify): _____
(409) Additional or relocated switches, (specify):

_____

(410) Raised roof
(411) Wall mounted head rest (used behind wheel chair)
(412) Other adaptive device (specify):_____

_____

EXTERIOR of OCCUPANT'S VEHICLE
(451) Hood
(452) Outside hardware (e.g., outside mirror, antenna)
(453) Other exterior surface or area (specify):

_____

_____

(454) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(501) Front bumper
(502) Hood edge
(503) Other front of vehicle (specify):

_____

(504) Hood
(505) Hood ornament
(506) Windshield, roof rail, A-pillar
(507) Side surface
(508) Side mirrors
(509) Other side protrusions (specify):

_____

(510) Rear surface
(511) Undercarriage
(512) Tires and wheels
(513) Other exterior of other motor vehicle (specify):

_____

_____

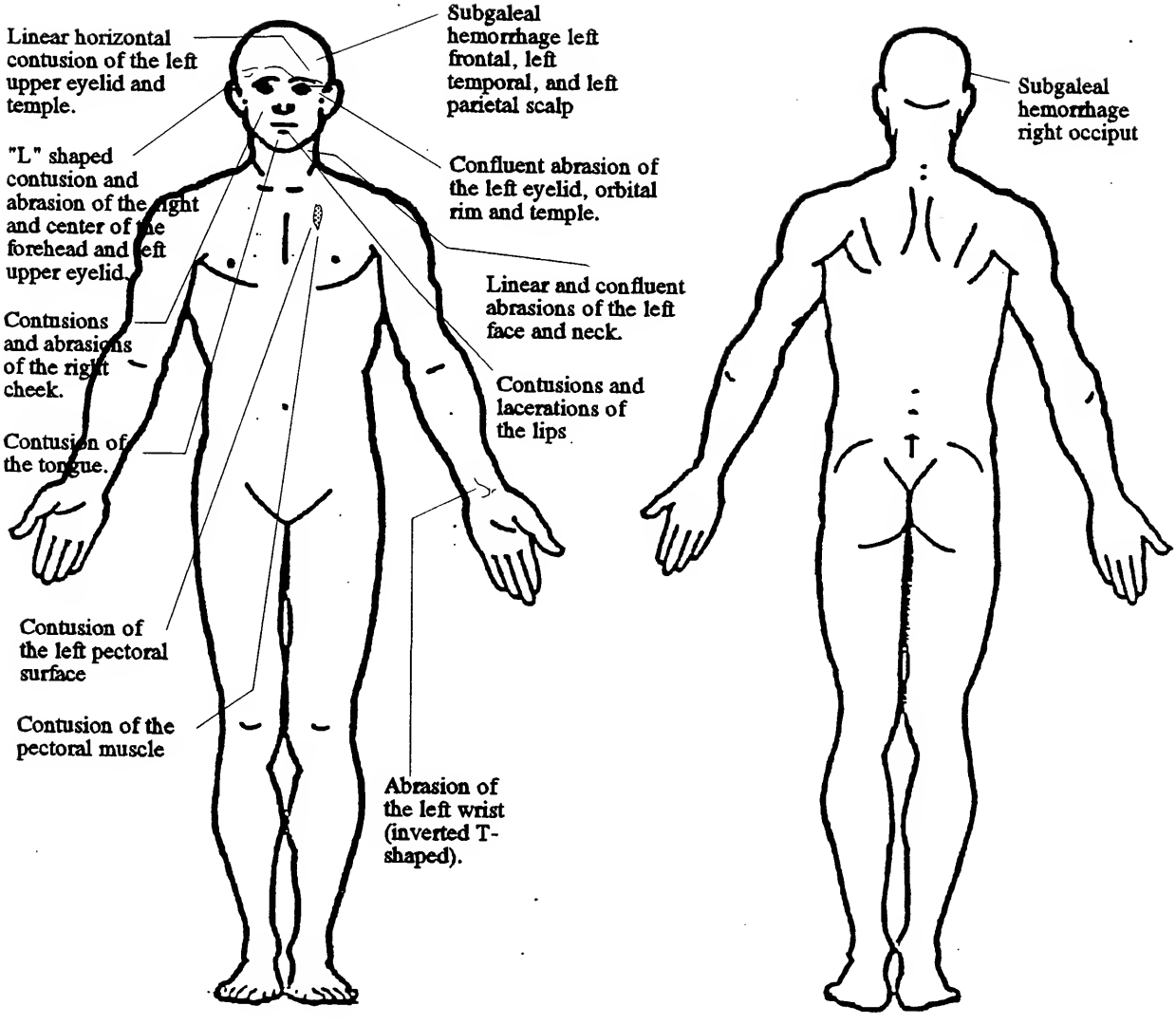
(514) Unknown exterior of other motor vehicle

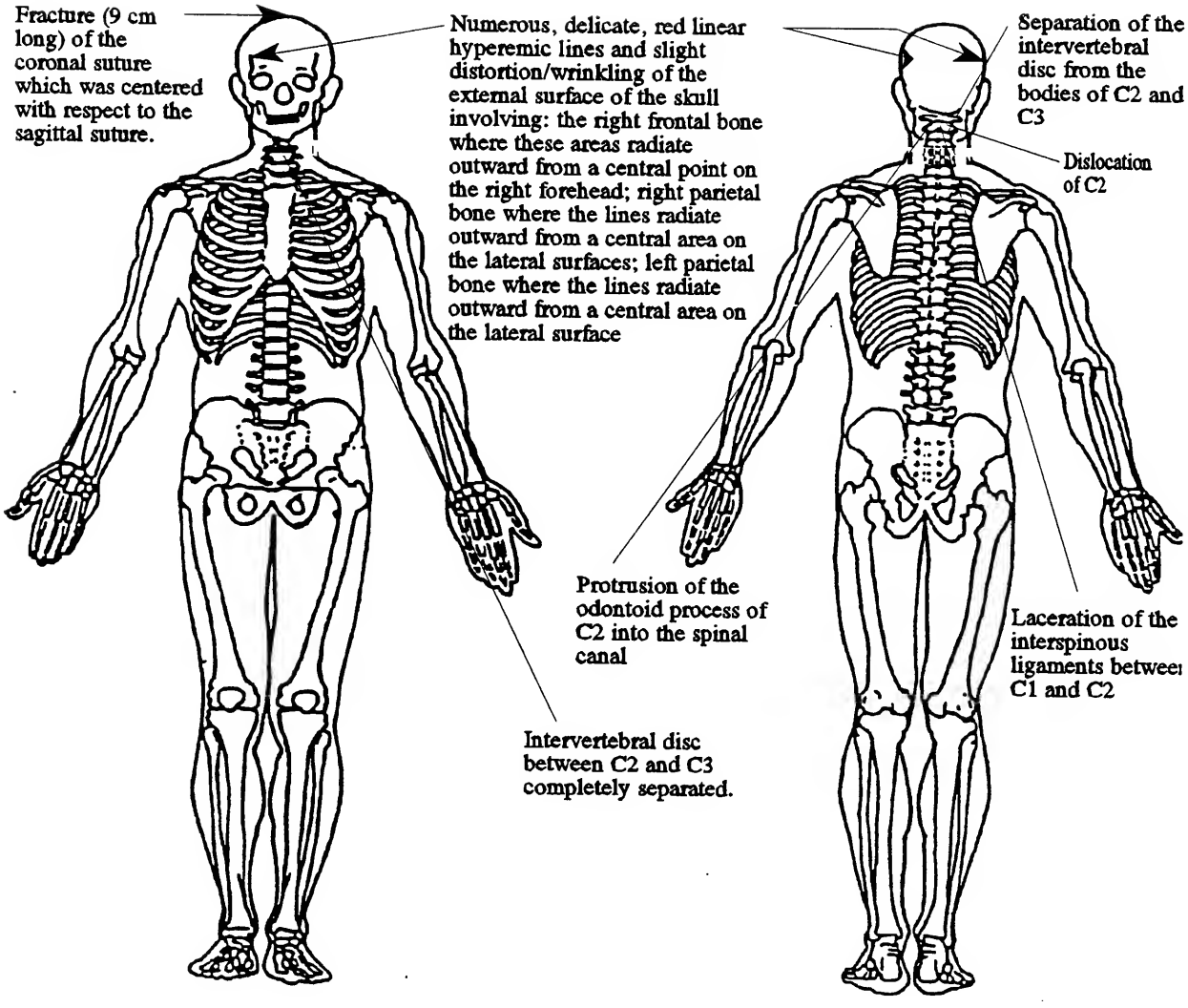
OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(551) Ground
(598) Other vehicle or object (specify):

_____

(599) Unknown vehicle or object

NONCONTACT INJURY
(601) Fire in vehicle
(602) Flying glass
(603) Other noncontact injury source (specify): _____
(604) Air bag exhaust gases
(697) Injured, unknown source





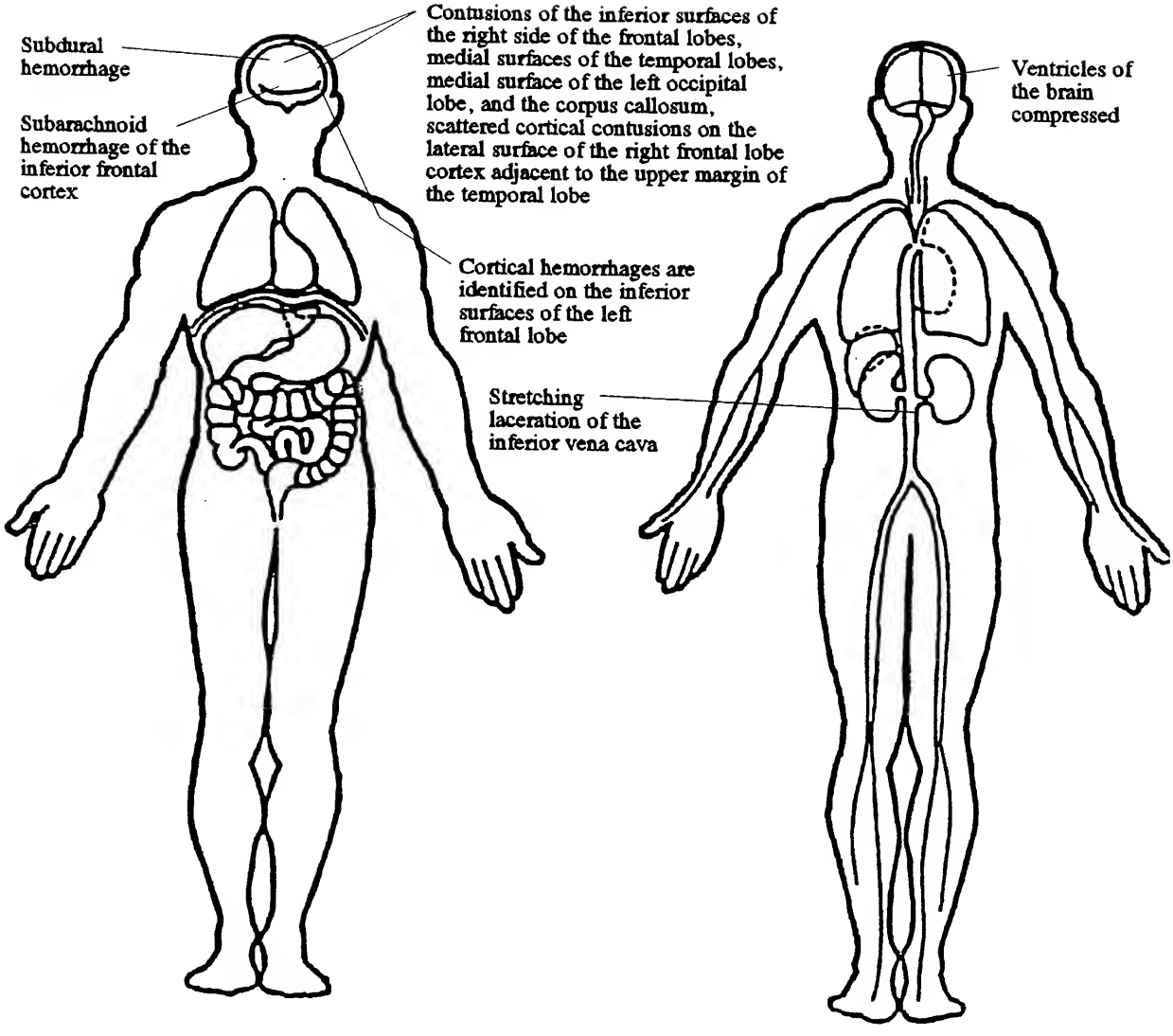
Arterial Blood Gases

pH = 6.97

PCO_2 = 48

PO_2 = 90

HCO_3 = 10


Subdural hemorrhage
Subarachnoid hemorrhage of the inferior frontal cortex
Contusions of the inferior surfaces of the right side of the frontal lobes, medial surfaces of the temporal lobes, medial surface of the left occipital lobe, and the corpus callosum, scattered cortical contusions on the lateral surface of the right frontal lobe cortex adjacent to the upper margin of the temporal lobe
Cortical hemorrhages are identified on the inferior surfaces of the left frontal lobe
Stretching laceration of the inferior vena cava
Ventricles of the brain compressed